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VIROL

THE MEDICAL JOURNAL OF AUSTRALIA.

VOL. II.—3RD YEAR. SYDNEY: AUGUST 26, 1916. No. 9.

THE CARDINAL LIGAMENTS: THEIR GENESIS.

By Arthur J. Nyulasy, M.R.C.S. (Eng.),
Gynaecologist to the Perth Hospital.

In the *Annals of Surgery* of April, 1914, I gave a description of the anatomy of the cardinal ligaments, and described cases of uterine prolapse successfully treated by my operation of "Looping the Cardinal Ligaments." In *The Medical Journal of Australia* of the same year further details were submitted, and in *Surgery, Gynecology and Obstetrics* of January, 1916, I discussed the place and limitations of this operation, in the same paper describing the operation of "Restoration of the Round Ligaments," which treats retroversion by giving the round ligaments physiological rest. In the present article, the genesis of the cardinal ligaments will be dealt with. But, before this is done, it may be pointed out that an accurate knowledge of the anatomy of these ligaments makes the operation of pan-hysterectomy for cancer a comparatively simple procedure, rendering it practically free of hæmorrhage and greatly diminishing the possibility of injuring the ureter or of overlooking abnormalities of this tube. Furthermore, ureteral calculi in the pelvic strait may be removed with comparative ease and safety. In pan-hysterectomy, and in the operation for ureteral calculus the primary step is to open up the utero-vesical pouch through an abdominal incision, and to expose and isolate the cardinal ligaments—the key of the situation.

A study of the female fœtus indicates that in an early stage of development there is adhesion between the pelvic fascia (and postero-lateral wall of the bladder) on the one side, and the embryonal uterus about the level of the future internal os (and the lateral vaginal fornix) on the other side. With retreat outwards and general enlargement of the pelvic wall, the areas of least resistance in the adherent parts appear to become drawn out into strands (muscular, fibrous, or mixed). The net result is the formation of a structure of a definite anatomical type, extending from the side of the uterus outwards, towards the lateral pelvic wall, the inner segment of this structure being a musculo-fibrous band and the outer segment consisting largely of fibrous strands spread out fanwise. This structure is the cardinal ligament, a term invented by Kochs. I have adopted this term because of my conviction that these ligaments are the main or "cardinal" element holding the uterus at a more or less definite level in the pelvis, and not because of any anatomical facts derived from Kochs. Both the anatomy and the genesis of the cardinal ligaments as I describe them are entirely the result of my own observations and dissections.

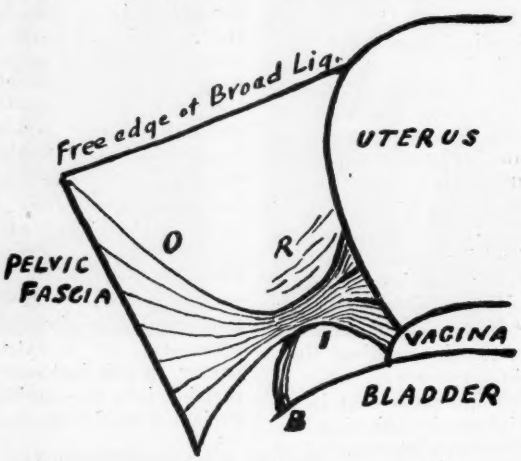
In addition to the fibrous strands which extend to the pelvic wall from the outer end of the inner segment of the cardinal ligaments, there is a strong fibro-muscular band given off to the bladder from the inner segment of the ligament in a position corresponding to the ureter. This band plays an important part in holding up the bladder, so that when the uterus prolapses from overstretching of the cardinal ligaments (and coincident or consequent overstretching of the utero-sacral ligaments), cystocele is necessarily produced.

On the posterior layer of the broad ligament strands of muscle are found lying parallel to the upper free margin of the inner musculo-fibrous segment of the cardinal ligament, and are at first sight apt to be confounded with the ligament itself. I regard them as remnants of muscle drawn out from the uterus in the process of development. When in the operation of looping the cardinal ligaments the inner or surgical segments of the ligaments have been separated from the posterior layer of the broad ligament, the muscle remnants being ignored, they stand out clear and distinct as perfectly definite structures in which the muscular element is obvious, the firm, clear-cut, upper, free margins sloping downwards and outwards from the side of the uterus. Once they are isolated in this fashion we have complete command over the ureter and the blood-vessels, and may with no great anxiety proceed to curtail the cardinal ligaments by stitching a loop in each to the uterus, or to carry out pan-hysterectomy, or to extract a stone from the pelvic ureter, in this last case securing drainage by a stab incision into the vagina, while sewing up the utero-vesical wound with special care.

To demonstrate the young cardinal ligaments in the fœtus (say 4 to 5 months) the whole anterior abdominal wall, together with the bladder, should be turned down over the pubes. The utero-vesical pouch is then carefully snipped open, and the uterus drawn upwards and towards the opposite side. The uterus is noted to be of the same width throughout, and directly continuous with the vagina, no obvious mark indicating their junction. The colour of the uterus is a very pale pink, while there may be a small notch in the mid-point of the fundus, to indicate the still incomplete junction of Müller's ducts. The large superior vesical (hypogastric) artery is well seen passing forward to the supero-lateral aspect of the bladder, while nearer the mid-line the smaller, curling ureter, although relatively large, is seen lateral to the uterus, turning inwards to the bladder. With very little dissection the internal segment of the cardinal ligament is exposed, extending outwards from the side of the uterus low down near the insertion of the ureter into the bladder. Its outer end passes over the ureter, appearing to give off a definite band to the bladder in a position corresponding to the ureter. This inner segment of the cardinal ligament is feathery-

looking, and in colour very light pink, like the uterus, from which it is an obvious extension outwards, as if drawn out bodily from that organ. The ligament narrows as it extends from the uterine wall, and from the outer end delicate strands pass outwards. To demonstrate these well, symphysiotomy is done, the superior vesical artery cut away, the pelvis widely opened out, and the bladder released and pulled over to the opposite side. Fine whitish strands, converging from the pelvic fascia inwards towards the outer end of the inner segment of the cardinal ligament, then become prominent. In carrying out the dissection a good magnifying glass may prove helpful.

The muscular and fibrous elements in the inner or surgical segment of the cardinal ligament are in inverse proportion, so that if the muscular element is well developed the fibrous element is necessarily scanty. Women in whom the fibrous element is deficient will be more likely to get uterine prolapse in the presence of strain, such as may occur in parturition. In this connexion I have usually found the muscular element in the inner or surgical part of the cardinal ligament particularly well developed in cases of prolapse of the uterus in which the operation of looping the cardinals is being carried out. Similarly, in vaginal hysterectomy for procidentia, the stumps of the cardinal ligaments have presented a high proportion of muscle. Although in such cases the congenital factor alone may be invoked to explain the marked development of muscle, it seems to me likely that this may, to some extent, represent an hypertrophy of the muscular element of the cardinal ligament, resulting from continued effort to prevent extrusion of the uterus from the pelvis.



Having now discussed the genesis of the cardinal ligaments as far as my investigations have led, it seems desirable to give some further details with regard to the relations of the ligament from the surgical standpoint. As described in earlier papers, the inner or surgical segment of the cardinal ligament arises by three more or less definite heads. The middle head arises from the side of the uterus at about the level of the internal os, and in a position corresponding to the line of the transverse part of the uterine artery. The superior head arises above this, the ascending part of the uterine artery curling up over its anterior surface. The inferior head arises from the lateral vaginal fornix. These heads unite to form a musculo-fibrous band about half-an-inch wide, which passes outwards for about an inch on the posterior layer of the broad ligament, adherent to this layer but separable with comparative ease in the living subject. The transverse part of the uterine artery courses inwards on the anterior surface of the body of the ligament. The lower margin of the ligament is in relation with the transverse vaginal vessels by firm connective tissue, the area of least resistance in this tissue being penetrated by a pedicle needle with no great difficulty. The ureter dips forward from the posterior layer of the broad ligament, to pass beneath the outer end of the inner or surgical segment of the cardinal ligament, and then to swing into the bladder. At its outer end the surgical segment changes its character, spreading out fanwise into fibrous strands inserted into the pelvic fascia, some of them passing up over the iliacs. A well-marked fibro-muscular band is given off and inserted into the bladder slightly external to the ureter.

In order to expose the cardinal ligaments in the living subject, with a view to performing the operation of looping the cardinal ligaments, a free suprapublic abdominal incision and a fairly high Trendelenburg position are essential. The utero-vesical pouch is opened, the incision extending laterally to ½ inch or ⅔ inch from the round ligaments, at which point an incision parallel to the round ligaments is made, extending inwards and outwards. The bladder is pushed down off the uterus and vagina, the cardinal ligament isolated, and the slack taken up as a loop, the base of the loop being stitched to the uterus near its lateral margin. The uterus is thus fixed at its normal level in the pelvis. To remedy retroversion, the incision in the broad ligament parallel to the round ligament is closed with a silk purse-string. This brings the uterus into anteversion and leads to recontraction of the overstretched round ligaments, by putting them to sleep ("Restoration of the Round Ligaments"). The free ends of the purse-strings are made use of to close the utero-vesical incision. The utero-sacral ligaments may then be curtailed, and thus put in a more favourable condition to carry out their twofold function of acting as tensors of the anterior vaginal wall, and of reinforcing the cardinal ligaments.

In connexion with the foregoing procedures for uterine prolapse, Dr. P. J. Bidwell, of Toledo, Ohio, states that in a series of cases dealt with by my operations he finds the claims justified. As to the special operation of "Restoration of the Round Ligaments," Dr. Lilian Cooper, of Brisbane, wrote that she regarded it as ideal for retroversion.

SURGICAL EXPERIENCE IN GREAT BRITAIN.[1]

By Reginald Bowman, M.B., C.M. (Ed.), M.R.C.S. (Eng.),
Parramatta.

Your Committee asked me to give some impressions of the surgical work seen by me during my trip to Great Britain, 1914-15.

I may say, in beginning, that my visit to the Homeland was originally planned as a long holiday, for my family and myself; serious work was to be only a side issue. Owing to the sudden and unexpected outbreak of war on August 4, 1914, all my arrangements were upset, and I had an opportunity of giving much time to hospital work.

During October and November I was in Scotland, and there had the good luck to see a lot of the work of Harold Stiles, an old friend of my student days. He was a brilliant student, and his subsequent work as an original observer is well known to you all, through his writings. From his unique position, as sole surgeon to Chalmers Hospital and the Children's Hospital, of Edinburgh, he has had an abundance of material to work upon, and it is therefore not to be wondered at that he has developed into one of the best surgeons in the United Kingdom.

It is an interesting fact to note that while in Australia we have a number of men doing sound and first-class surgery, who have practised as general practitioners; in Europe this is almost unknown. There the surgeon has a long probationary row to hoe. One finds that all of them have spent at least ten or twelve years in the anatomy rooms before the appointment of full surgeon came their way. I refer to the men at the tree-top to-day. This brings me to my point, that the big surgeon is first and all the time a big anatomist.

Professor Alexis Thomson, of Edinburgh University, a fellow student, was good to me, and helped me a lot. In Glasgow, J. Pringle, of the Royal Hospital (an old Parramatta boy) with whom I stayed for about ten days, kept me very busy. He is a splendid operator, and his aseptic technique is most perfect. He has done quite a lot of original work.

I fear that, after a lapse of eighteen months, most of what I then observed is an old story, so much water having flown under the bridges meanwhile; none the less, repetitions do no harm.

Stiles, on hernia of children, is good to watch, clever, quick dissecting, and when the ligatured sac springs back into the abdomen with a click you feel that you have seen an artist at work. His method of after-treatment is interesting. The wound is dressed with bismuth, iodoform and mercury paste, and no bandages are applied. Both shoulders are secured above by web straps, the ankles fixed below; a cradle protects the pelvis and abdomen, the bed-clothes covering all, and the child has his arms free outside the bedding, to play with his toys.

Stiles holds that, in children, the majority of wounds become septic through sodden dressings. In the Children's Hospital, Edinburgh, I saw a great number of operations for tuberculous glands of the neck, in marked contrast to the few operations for the same glands in the Hospital for Sick Children, Great Ormond Street, London, where, of late years, comparatively few are treated by operation. In the latter hospital, Mr. Waugh has charge of a special department for these cases. He practises complete enucleation of tonsil by blunt dissection. He first has all caries removed from mouth by the dentist and the ears cleaned. The results are very fine, and Waugh holds that the removal of absorbing glands saves the necessity for neck operation, as absorption follows in from 75% to 85% of cases. These figures are quoted from memory.

While on the subject of tubercular glands, I should mention that Mr. Stiles and his assistant have done some very fine work in establishing the fact that the large majority of glands in children is the result of bovine infection, through unboiled milk.

I was surprised and horrified to find how the United Kingdom fairly reeked with tuberculosis. While visiting a cattle show in Edinburgh, I noticed that 30 out of 40 cows had the typical tubercular cough. They were for sale, and had been rapidly fattened up. On enquiring, I found that, owing to the strong agrarian parliamentary influence, it was impossible to have a law passed, such as we have in Australia, for the inspection of stock and dairies and the destruction of infected beasts, as the farmers and land-owners asked for compensation, the cost of which would be ruinous to the State. But we may ask what is the cost to the State of the ruined lives and the deterioration of the nation? One hardly wonders that Mr. Hughes, with his up-to-date views, has hit on over there.

In Birmingham, while visiting the large sewerage works, I was asked to see a herd of cows, and I at once remarked on their healthy condition, the reason being the cows belonged to the Council (perhaps the most up-to-date in the Kingdom), and the cows were subjected to regular tuberculosis tests. I may say that all milk from these cows went to the hospitals as a free gift.

It is very interesting in all walks of life, and to us specially in surgery, to see the same results arrived at by different methods. I would like to contrast the methods of Stiles and Killock of Middlesex Hospital in their treatment of club foot (*talipes equino varus*).

Stiles cuts the deep plantar fascia and *abductor hallucis* subcutaneously; with a wrench twists the foot into shape and then divides the *tendo Achilles*. These steps are carried out strictly in the order named. The cases are all in infants.

Killock (1) cuts deeply through all the tissues, transverse to the axis of the foot, on its inner side, over the head of the *os calcis*, and with force wrenches the foot straight by hand, leaving a gaping wound. (2) He then cuts a rectangular long flap, with its base above, on the outer side of the foot, in the vertical line of the leg, the base of the flap being above the lower end of the fibula. This flap he frees and swings over to fill the gap on the inner side of the foot, which it does nicely. I have seen the results in both cases, and they are good. Killock admitted to me that he thought Stiles's

[1] Read at a Meeting of the Central Western Medical Association (New South Wales) on May 17, 1916.

method the better for infants, but he found his better for older children.

A fact of considerable importance I learned from Stiles. It is that, in all acute infectious cases, such as osteo-myelitis and acute appendicitis, it is wise never to exhibit chloroform as an anæsthetic, because of the real danger of inducing fatty degeneration of liver cells, with death some days later. He has cases on record, with full post-mortem demonstrations.

In London I had many opportunities of observing the work of Sir Arbuthnot Lane, one of the most courteous and original men I have yet met in our profession. He has been a pioneer in many lines of surgery and, in accord with the Biblical saying of "a prophet in his own country," Lane, from his early days up to now, is the best-abused man in our profession. When he first introduced the operation of resection of ribs in empyæma, it was proposed in the College that he be expelled for unjustifiable and risky surgery. His latest work in colectomy for the cure of various diseases (incurable by medical treatment) the result of intestinal stasis, meets with equally strong abuse.

I saw him remove eleven colons for various complaints, and the skill and dexterity with which he handled the intestines was a veritable eye-opener to me, equally so his skill in bone plating and cleft palate and lip operations. His hospital work was confined to these three classes of cases before the war.

A short sketch of his procedure in colectomy may be interesting. The patient, while being anæsthetized, has a needle inserted into each axilla—four to five pints of saline solution are exhibited during the operation. This is perfectly effective in preventing shock. The operation lasts about one hour. The abdomen is opened from the xiphoid cartilage to the pubes, the skin edge of wound being clamped to towels with big tissue forceps. The bowels are freely brought out and examined for adhesions, etc. He then secures the ileum with two clamps several inches from the caecal valve, and frees the ascending colon by stripping the peritoneum where it reflects to the parietes. With the ascending and transverse colon free to handle, he ligatures, at intervals of from four to five inches, the vessels along the length of bowel, cutting the bowel free as each ligature is tightened. The ligature used is a strong linen thread doubled.

Great care has to be taken in ligaturing, as, should a slip occur, the hæmorrhage is alarming and the vessels difficult to pick up. Having the colon detached up to the splenic flexure, the parietal flexure of peritoneum binding the descending colon down is stripped (in stripping, the peritoneum is cut with scissors) and the necessary ligatures applied. The colon is clamped off with two clamps at its junction with the pelvic colon; the clamped ends of the colon and ileum are cut, and the edges seared with cautery. The clamps are left on until the next step, which is an end-to-end anastomosis of the ileum and pelvic colon. Double or treble rows of cotton or silk sutures are used.

The cut mesentery is carefully stitched on both upper and lower surfaces, a long rectal tube is passed and worked up through the union into the ileum, and a pint of liquid paraffin injected. This tube is fixed to the perineum and clamped, and is usually left in for three days. The abdomen is then filled with saline, and the peritoneum and fascia closed by one long continuous suture, tied at intervals. The skin is closed with Michel clips or sutures. In spite of the great handling of bowels, the patients seem to have no shock, and all I saw were bright and chirpy next morning.

In rheumatoid arthritis the early effect of operation is very remarkable, pain being gone and movements of joints (not fixed by arthrosis) restored within eighteen hours. The great trouble in these cases is the after adhesions. I saw Sir Arbuthnot Lane operate in two cases of six years' standing, and the adhesions were very extensive.

As to the future of this operation, I hardly like to predict, but one great truth has been established. Dr. N. Mutch has been taking, at the time of operation, samples of the contents of the ileum and duodenum for some years, and has in all cases found pathogenic organisms, proving that in cases of intestinal stasis, organisms invade the small intestine, which, it should be remembered, is the active absorbing area of the canal. Thus we understand how toxins are absorbed, detrimental to one or other of the systems. It is for present observers to find a perfect method of draining the alimentary canal and overcoming the kinks of chronic intestinal stasis other than by operation.

Time will not allow me to contrast the methods of Lane and Stiles in their respective treatments of cleft palate and hare lip, though they are instructive and interesting.

Just a word as to Lane's method of bone plating, as it is his operation specialty. (1) The wound is clamped off with towels along the edges, and is never touched with the gloved fingers. (2) He never cuts over bony surfaces. (3) He never ligatures a vessel. (4) He never stitches the deep fascias, thus allowing deep drainage. (5) In reducing the shortening of overlapping bones, he insists on mechanical rules of leverage, and consequently no traction is required.

I was watching a surgeon in a London hospital endeavouring to overcome the overlapping with two assistants at each end pulling for all they were worth with no result. After the operation I asked him why he did not go and see Lane do the same work? He had no time. This seems to apply very much in London. It is only the visitors who see what the big men are doing.

Sir Arbuthnot Lane's mechanical methods of restoring length to a shortened limb in cases of overlapping of the fractured ends of the bones after they have been freed from soft tissues for several inches above the site of the fracture are as follows: (1) In cases where fracture is more or less transverse, bend the limb at the point of fracture until the edges abut, and then, by leverage, straighten the limb. (2) In oblique fractures, advantage is taken of the fact that two slanting planes will easily slide upon each

other if held together and leverage is applied. Clamp the ends together with big forceps, and if with lateral twisting they will not slide one on the other, place a flat serrated lever between the bones, keeping the clamp forceps tightly held, and turn the flat lever over. The bones will then slide one on the other, until the shortening is rectified. Several adjustments of this lever may be required.

If you will allow me, I should like to refer to the work of several other men.

Mr. Waugh, of Great Ormond Street, is a man so well read and up-to-date that one is always learning from him. I have already referred to his operation of enucleation of the tonsils. He uses a special instrument for gripping the tonsil. He proceeds as follows: The patient is anæsthetized with chloroform, given rapidly and continued with a Junker's inhaler. A thread is put through the tip of the tongue and held by an assistant, and the mouth gagged. The tonsil is gripped and drawn to the centre-line of the fauces. With a pair of long slender forceps he tears through the capsule, just behind the anterior pillar, with a few sweeping movements. The tonsil is freed up to its attachment to the posterior pillar. Any bleeding is checked by pressure with gauze swabs, held in the same forceps. The back attachment of the capsule, if resistant, is snipped with scissors.

This operation, as compared with that performed with McKenzie's guillotine is slow. But in tuberculous cases it is the only one, as with it 100% of tonsils can be completely removed, no matter how big or how small, and I would point out that, in adults and young people over sixteen years of age, this rapid enucleation with McKenzie's guillotine is often attended with risk of post-operative hæmorrhage, as several here present well know.

Sir John Bland Sutton, of Middlesex Hospital, is a man always courteous to visitors, and he has a fund of humour that makes his clinics very bright and interesting. In his operation for complete hysterectomy (on which he built his fame), one point struck me as interesting. Having removed the uterus, he completes this step by suturing the open end of the vagina to the floor of the pelvis and peritoneum, leaving an open ring about the size of a half-crown, which he never closes. The results are the best, and he assured me that no prolapse or tenderness was left.

Killock, of Middlesex Hospital, has introduced an interesting and useful modification of the incision for colotomy. He makes a T-shaped incision, the stem of T being one inch wide, with the skin base in line of the wound. He dissects this down as a flap, and when the colon is brought to the surface the flap is passed under the bowel and stitched back to its former position. The result is that when the bowel is opened later there are two openings separated by a bridge of skin, and the subsequent cleansing of the rectal bowel becomes an easy thing for an ordinary untrained nurse

FARM COLONY FOR CONSUMPTIVES.[1]

By **A. A. Brown, M.B.,**
Medical Superintendent, Greenvale Sanatorium, Victoria.

Tuberculosis is a chronic, infectious, communicable, preventable and curable disease. The disease being chronic, it cannot be hoped that the patient will get well quickly. It may take months, or even years, for complete recovery to occur, and the patient, if properly controlled, may be able to do work whilst effecting his cure.

Consumption usually makes its attack at that period of life when the individual is most useful and productive to the country, and from an economical standpoint it behoves the State to put forth strenuous efforts to stem the disease.

To combat tuberculosis the State must intervene. There must be wise legislation on the subject, and legislation would, at first, have to be experimental and then, perhaps, segregation of the afflicted from the rest of the community might have to follow, and the unafflicted would have to bear the expense. To manage communities of sufferers physicians would have to be specially trained.

The establishment of a Farm Colony for Consumptives has engaged my thoughts for a long time past. At Greenvale certain activities are carried on, in which both male and female patients participate. The usefulness of the Greenvale Sanatorium was widened five years ago, and opportunities have since been afforded industrious patients to acquire, during their interne, a knowledge of rural industries that should fit them to undertake more or less robust country occupation, either on their own account or in association with others possessing greater bodily vigour and more capable therefore of sustaining the heavier toil incidental to farming conditions of existence.

The knowledge that industrious patients, male and female, can acquire now at Greenvale should stand well to them in life's battle, inasmuch as a training is a valuable asset to anyone who intends to follow rural pursuits or engage in outdoor handicrafts, and tuberculous subjects who may be discharged cured, or, with the disease arrested, are capable of following outdoor occupations.

The prominent picture in all schemes for bettering the condition of consumptives is country environment, but a city dweller, completely destitute of country training, cannot be dumped down suddenly on the farm or on the orchard, or any other place, and be expected to make a livelihood. He requires training in the pursuits upon which he intends to embark.

A sanatorium farm for consumptives, for persons for whom there is great hope, should be such a place where rural industries of highly profitable kind are conducted, and opportunities should be afforded patients of acquiring expert knowledge in every direction in connexion with their work.

There should prevail in such a place an intense system of cultivation, and the production of milk and the rearing of cattle, sheep, pigs, poultry, and

[1] Being the basis of a Speech delivered at the Tuberculosis Conference held under the auspices of the Municipalities of the Metropolis of Melbourne, June 22, 1916.

the culture of bees, vegetables, fruits, flowers, fibres, silk and herbs should, along with handicrafts, be carried on. On such a place factories of various kinds in which women could work should be erected. Female, as well as male, patients could be found congenial employment.

In Victoria, pulmonary consumption accounts for one out of every fourteen deaths, or, in other words, one out of every fourteen of us will, as matters now stand, die of consumption. This mortality can be stopped.

Consumption is a disease that is capable of being controlled, and in time it will, no doubt, be eliminated from the human race in the same fashion as other diseases have been eliminated, by the process of immunity. In the building up of this immunity many lives are yet to be sacrificed, because proper steps are not taken to avert mortality, and it is the concern of the State to stay the ravages as far as practicable; and it is practicable to do much to avert premature deaths amongst our families.

The care and treatment by the State of consumptives, especially early cases, is a praiseworthy undertaking, but the present method stops far too short of securing permanent benefit to the afflicted. Whatever good results have been achieved at sanatoria, it is quite possible that a great many cases will again relapse, because the surroundings to which the patients return on leaving the sanatorium are quite unsuitable towards fostering and maintaining the cure or benefit received during residence at the institutions. To continue the benefits of treatment received at sanatoria and to train patients in country work, a farm colony in association with a guiding institution is an indispensable factor.

Patients, male and female, who have improved sufficiently at the sanatorium, and who are capable of performing continuous light work, should be established on a State Farm Colony. The farm colony, with illimitable water supply, should be adjacent to a well-equipped sanatorium, so as to be capably governed. The soil should be of good quality and the place should be near Melbourne, so as to secure good markets for the produce. Cheap buildings should be erected, and the patients should club together to maintain themselves, under the authority of the sanatorium. They would engage in the field occupations already mentioned, and also in handicrafts in which they were proficient, and the products of their labour would be taken over by the sanatorium for sale, deducting 10% to cover various items of cost. Female patients could be employed in various ways in various handicrafts and in the orchard, etc. Each patient should have three or more acres of land, which he or she could work singly, or in association with his or her fellows on neighbouring blocks, or along with his or her family. It might perhaps be advisable to establish whole families on blocks of suitable size.

Each patient would, respecting his or her block, be debited with: Capital cost thereon, 4%; sinking fund, 2%; cost of buildings, furniture, tools, provisions, etc., 4%; and he or she should be credited with the value of all products—less 10%—raised and sold on his or her behalf. In addition, he or she would have to pay for any excess requirements for his or her family. Some scheme is necessary to begin with, and the scheme can be improved as experience dictates. Something must be done to alter the lot of the consumptive.

As matters now stand, the consumptive is compelled, by sheer force of circumstances, to go back to city environment, with its dust, ill-ventilated dwellings, factory occupation, poor food, over-indulgence, irregular hours and mental weariness, induced mainly through a feeling of dependence on others. At the same time, the individual, as long as his condition remains "open," is a carrier of contagion to all whom he meets. He contaminates the dwelling, the workshop and the street, and he would, in the interest of public health, be far better on a sanatorium farm until his condition becomes "closed" and he is cured. If there is one thing more than another that distresses sufferers from consumption, it is the fear that they will become a burden unto others. Independence is an innate trait in a high-souled character, and when encouraged in the valetudinarian, it greatly assists him to throw off the *ennui* which obsesses him. Then, too, you are fostering in the individual and ingraining in the community a love for rural life and the rurigenous element is the back-bone of the nation. The State's interest, then, should be strengthened to ameliorate the lot of the consumptive and remove him or her from being a burden on poor relatives who cannot bear the financial strain, and, at best, their efforts, instead of improving his or her health, really and truly only tend towards diminishing his or her chances of permanent cure. The wealthy consumptive is on a different plane to his indigent brother, and he can afford to live under ideal conditions and follow ideal occupations. For the opulent as well as for the necessitous there is only one royal road to cure, and this road has indicators placed along it, pointing to open-air life, moderate work in fields, good food and cheerful surroundings.

It may happen that the wealthy afflicted might be induced to interest themselves in starting small colonies for their less fortunate brethren, where various out-door and profitable occupations could be instituted. The Government, however, would require to do the work on a grand scale, and something like 5,000 acres would be required, with illimitable supply of water from, of course, river sources. On 5,000 acres many persons could be maintained, and each individual should have from three to five acres, and the land remaining vacant could be improved and utilized for grazing stock and other purposes.

The scheme, if the money be found, is practicable somewhere along the Yarra, and abundant water can be procured from that stream. A railway is an indispensable adjunct to the place. A farm for consumptives should prove profitable to the State if properly conducted. Government institutions are big consumers of farm products, and such products are always marketable. When any lessee patient is perfectly cured and has made his or her allotment freehold, and desires to sell out, he or she should be encouraged to do so and settle in some other

part of the State. By this means you are scattering trained agriculturists amongst the country population and saving from early death numbers of individuals who should prove of value to the State.

THE TREATMENT OF COCCAL INFECTIONS BY CREOSOTE.

By **Jas. F. Merrillees, M.B. (Melb.), F.R.C.S. (Ed.),**
Medical Superintendent, Roma Hospital.

The use of creosote for what are called catarrhal diseases is very old. The literature of last century, especially the middle, is full of allusions. It was the commonest drug used in fermentative disease of the stomach and bowels, and even had a vogue at one time equal to that of sour milk as an "elixir of life." Since then it has appeared spasmodically in the journals as a new remedy, either as a sudorific in certain eye diseases, or as an antipyretic in typhoid, or an inhalant in throat and lung troubles, or as a mixture in phthisis, etc. In the latter complaint it had a vogue especially when combined with some base or in a form which would enable the drug to be easily taken by the mouth and to evolve its creosote slowly when absorbed. No drug can have a reputation for a number of years without there being some cases in which it is useful. The great reputation of creosote in so many conditions led me, many years ago, to investigate the literature carefully, and as carefully to apply the information gained in practice. The conclusion of the matter is that creosote is useful and is sometimes a specific in all cases where there is a coccal infection alone or associated with some other disease, and that the measure of its usefulness is proportional to the purity of that infection. It has practically no effect in bacillary infection and only a minor beneficial effect in fermentative and other bacterial processes, I doubt if even then its action is separate from some intercurrent coccal infection. Typhoid gives a typical example of this. When Bryant urged its use in the *Australian Medical Journal* some years ago I tested it through a long series of cases. Its sole effect seemed to be that it prevented coccal complications. When these occurred it aborted or improved the condition very quickly. These results were checked whenever possible with the microscope. Otherwise, typical cases ran a normal course. In phthisis it had no good effect at all, apart from some intercurrent coccal infection. In local coccal infections it seemed to be useless, but when these became systemic, as evidenced by temperature or rigor, or where they, as in gonorrhœal rheumatism, were disseminated from a central focus, creosote acted either as a specific or ameliorated the symptoms to a remarkable extent.

I do not pretend to explain the rationale of its action. It appears to be analogous to those substances which exert their curative effect by exciting the secretion or manufacture of an antitoxin or something antagonistic to the disease. It does not depend on its sudorific action, as this is sometimes absent, as in pneumonia, in which excellent results are obtained with a mixture, that of Dr. Mathieson being very good. The clinical picture in many cases is exactly parallelled by a crisis, especially in epidemic cerebro-spinal meningitis and acute sthenic pneumonia. When used in non-coccal infections it causes no appreciable effect on the signs or symptoms. In early cases of the former disease the sweating is accompanied by a characteristic, heavy, offensive odour, which is not present in the latter, and the only proof that the disease is meningitis may be the presence of paralysis, which, in course of time, disappears wholly or partly. The following is typical of its action in many cases. In a case of appendical abscess, due to the colon bacillus, pneumonia developed. Creosote cleared up the latter, while the appendicitis ran its course unaffected. A case of gonorrhœa was not at all influenced by the drug. Some time afterwards "rheumatism" developed, and the creosote proved a specific. Two patients in the same neighbourhood developed sore throats. Both were put on creosote. One recovered rapidly. There was no result at all in the other, and antitoxin was required. Swabbings were taken in each. The first was coccal, the second was bacillary.

Since I have used creosote as a routine treatment in influenza, there has never been a complication. But in a good many cases during the last few years, in which the initial symptoms and signs had been obscure, the fact that there had not been a rapid amelioration helped in the diagnosis that the "influenza" has been something entirely different.

Influenza and Cerebro-Spinal Meningitis.

This was more especially the case during an epidemic of both these diseases in Kerang some years ago. Until I made it a routine to use creosote in every case, the only other means of diagnosis would have been to draw serum. There were several bad results. The patients were constant sad reminders of the weakness of therapeutics. But the use of creosote in every case gave me thirty-five positive results of meningitis, some of them of the most picturesque character. One girl, after the inunction, gave the typical reaction associated with odorous perspiration. For some days she lay in bed, unable to move or talk. She could see and hear, the latter with difficulty. She could move her eyelids, and by this means could answer questions. After recovery, her hand was completely paralysed, though this improved greatly later on. A young man had paralysis of the bladder and both legs; this disappeared eventually.

In influenza the reaction was not so great; there was not the odorous perspiration, nor was there anything like the prostration.

Pneumonia.

In no other disease have the results been so excellent, not in my hands alone, but in many other cases recorded in the journals. Since I used creosote first about sixteen years ago, there have been only two deaths in hospital or private practice. This more than proves Mathieson's assertion that his creosote mixture is a specific for pneumonia, though I wish to add, when it is due to a coccus, particularly the pneumococcus. One death was due to a mistaken diagnosis of typhoid, another to a nurse's error. This sort of assertion, no doubt, to many has a flavour of quackery. We all have our doubts about

"specifics" and "results." But one cannot help that. The records of the hospital for three years are open for inspection. Wherever possible during that period, the pneumococcus was demonstrated, and occasionally the other septic cocci. By pneumonia I mean typical pneumonia, associated, in most cases, with a definite rigor, sudden onset, and the usual signs. Tuberculous and other varieties are not included. One curious accompaniment is unusual development of *herpes labialis* after the temperature drops. It is much more marked than when the drug is not used. And it must be clearly understood that the only additional treatment in any case is a glycerine pack, when patients complain of pain or of "tightness" or difficulty in breathing.

Mode of Use.

Without going into the matter fully, it may be stated that in all fulminating cases with a high temperature and when a rapid effect is desired inunction of 5 to 10 minims into the right or left of the sternum while the patient is covered with blankets is the best method. The pulse is noted and treated in the usual way. The dose may be repeated in an hour or two, if the result has been slight. The inunction should be slow, drop by drop, each one disappearing with rubbing before another is dropped on the skin. If the skin is at all moist it should be dried well first. In all febrile coccæmias Mathieson's potassium iodide, glycyrrhiza and creosote mixture is the most efficacious, as these cases seem to stand the creosote better in this form of mixture, and there is no nausea or vomiting. It is best given every six hours regularly. It may be combined with diacetyl morphine hydrochloride if thought advisable. In afebrile cases, such as phlegmasia, "colds," "rheumatics," etc., including in this term sciatica, lumbago, etc., when acute in character, I find that a half of a minim, shaken up with water, and flavoured *secundem artem*, taken regularly every four hours, is more rapid in action. The essential thing is that it must be very dilute and that small doses regularly and frequently repeated act better than in any other way. The creosote should be of first-class quality and made by a good firm, as my experience is that results have varied sometimes when a brand was changed by the chemist.

In conclusion, I wish to emphasize to the profession the need of adopting some routine in these infections, especially with regard to the present epidemic of cerebro-spinal meningitis. This, to my mind, ought to be the early inunction of creosote and its exhibition as a mixture in all "influenzal" cases. It is both curative and diagnostic.

Reports of Cases.

DEPRESSED FRACTURE OF SKULL, WITH LOCALIZING SIGNS.

By **Donald I. Smith, M.B., M.S. (Syd.),**
Captain, A.A.M.C.; Assistant Medical Superintendent, Sydney Hospital.

A healthy male, aged 20 years, fell twenty feet off a scaffolding, and struck his head. He was brought to the Sydney Hospital immediately after the accident, on July 26, 1915.

When seen, the patient semed but half conscious. He did not speak or answer any questions whatever, yet he obeyed quickly any instructions given him. He was somewhat restless and irritable. There was a large hæmatoma of the scalp all over the left side, which rendered any examination of the cranium difficult. There was complete right facial paralysis. No bleeding from the orifices or other signs of a fracture of the base of the skull were detected.

The pupils were equal and active. There was no loss of movement in any of the limbs. The deep reflexes were normal. The Babinski reflex was negative, and no abnormal sign could be discerned, beyond the loss of speech and the right facial paralysis.

While under notice the patient underwent a period of irritation, and rolled about in bed, and the right side of the face, which had previously been paralysed, was the only part of the body that showed clonic spasms, showing that pressure on the facial area of the left cerebral cortex was undoubtedly present; the proximity of Broca's convalution to this explained the loss of power of speech.

Craniotomy was performed by Dr. Bell, and a depressed fracture of left temporal bone was found. The fragment was pressing on the lower end of the Rolandic area. This was elevated. Within a few hours of the operation the patient had regained consciousness, with complete recovery of speech, and was fairly sensible. He made an uninterrupted recovery, and was discharged on the twenty-fourth day quite well. There was no aftermath. He regained complete muscular control of the right side of the face, and had no sign of the inception of Jacksonian seizures when discharged.

He was seen by Dr. Bell in January, 1916, and was quite well.

The chief points of interest are:—

(1) The definite localizing phenomena which are so seldom present to such a marked degree.

(2) The patient's story: On questioning him, he described how he was perfectly conscious of all that happened from the time of admission until the operation, and even recognized the face of the anæsthetist afterwards; yet, when spoken to, he tried to answer, but was unable to speak. This loss of speech while completely conscious is interesting.

The case seems to prove that the left inferior frontal gyrus or the cortex in its immediate vicinity contains, as is claimed, the neurones governing speech.

A CASE OF PANCREATIC SUPPURATION SIMULATING TRUE DIABETES.

By **Donald I. Smith, M.B., M.S. (Syd.),**
Captain, A.A.M.C.; Assistant Medical Superintendent, Sydney Hospital.

The patient whose case is detailed below was admitted to Sydney Hospital on August 29, 1915 under the care of Dr. Jarvie Hood, by whose courtesy these notes are reproduced. He was 55 years of age, and an agent by occupation. He complained of pain in the left side for the previous three weeks.

Previous Illnesses.—He had had a similar attack of pain four years before, but had been quite well since.

Personal Habits.—He was a moderate drinker, but a heavy smoker.

The present illness commenced suddenly three weeks before. He stated that "he caught a chill" and felt "off colour" for two or three days. Pain was first noticed definitely in left lumbar region. This was continuous and nagging; he never felt any acute attacks. It has been getting steadily worse since. There was no history of gastric disturbance. During this period the patient has been losing weight rapidly and has noticed marked thirst and polyuria.

The patient was an individual of the florid type (alcoholic ?). The temperature pulse and respiration were normal. A large mass, the size of a fœtal head, was felt in the left flank. It did not move with respiration, was smooth in outline, firm and tender and somewhat elastic.

X-ray examination revealed nothing abnormal.

A blood count was made. The red cells numbered 6,000,000, and were of a normal type. There were 22,000 leucocytes, largely polymorphonuclear.

The urine was acid; the specific gravity 1038. There was no albumin and no pus. Sugar was present. The total amount secreted in 24 hours was 120 ounces.

Ten days later the skin had become slightly œdematous over the mass.

An exploratory incision was made by Sir Herbert Maitland, under local anæsthesia with ½% cocaine. About ½ pint of pus was evacuated through an incision in the left flank, measuring 1½ inches. The wound was drained.

Eight weeks after admission the discharge of pus had ceased. The patient was quite well, and all the symptoms had vanished. The urine was normal. He was discharged on November 12, 1915. There has been no return of trouble since, as far as is known.

The point of interest in this case is to be sought in the urinary examination.

Date.	Reaction.	Sp. Gr.	Sugar.	Amount in Ounces.	
On Adm...	Acid ..	1038 ..	7.0% ..	120 ..	On strict carb'hydr'te free diet
1.9.'15	.. Acid ..	1045 ..	8.3% ..	172 ..	
8.9.'15	.. Acid ..	1035 ..	10.0% ..	136 ..	
11.9.'15	.. Operation.				
12.9.'15	.. Acid ..	1015 ..	3.5% ..	40 ..	
13.9.'15	.. Acid ..	1015 ..	2.8% ..	64 ..	
30.9.'15	.. Acid ..	1020 ..	Trace ..	50 ..	

Thence normal.

The case was apparently one of suppuration in the pancreas, the function of which was so seriously interfered with that all the signs of true diabetes mellitus were present, and persisted in spite of rigid dieting. The whole condition cleared up after drainage.

Reviews.

TUMOURS.

Kettle's "Pathology of Tumours"[1] is an excellent small handbook, intermediate between the brief statements of the surgical text-book and the larger monographs. The style is clear and concise, and the illustrations are excellent. Those showing microscopic structure have been specially drawn, and colour is used when necessary. The book is divided into three sections, on the general biology of tumours, their general pathology, and their special pathology. The classifications proposed by Powell White and by Adami are described, but not adopted. The author accepts the ordinary classification, but with some modifications. Endothelioma is made to include angioma and lymphangioma. Myeloma is a separate class, including giant-celled sarcoma arising from bone marrow, and generalized myeloma and chloroma. Melanomata form a distinct group, corresponding with melanotic sarcoma, but the author is not assured whether the elements are mesoblastic or epithelial. No reference is made to melanoma of the pia mater. The peculiar cell formations in mixed parotid tumours are described as endothelial, or possibly epithelial, and it is even questioned whether true cartilage cells ever occur.

In general, the book is a clear statement of accepted knowledge. It will not help the advanced worker in the more difficult problems. The importance of the distribution of metastases in separating epithelial from mesoblastic malignant growths is not emphasized. Handley's permeation theory is adopted as the main explanation of metastasis in carcinoma, but its limitations are not stated. Little help is given concerning endothelioma, its variable malignancy, its relation in some cases to syphilis. Syphilis, in fact, is not named in the index. Perithelioma is only mentioned incidentally in special pathology. The tendency to widen out the bounds of endothelioma is evidently viewed with disfavour. Adami's conception of mesothelioma for tumours of the adrenal, testis, ovary, etc., is not used. No assistance is given in the diagnosis of lymphadenoma from Hodgkin's disease. Heredity is treated too lightly. The author should read afresh the family histories recorded by Broca, and the experience of Miss Slyes, in America, in the breeding of mice. In dealing with the age distribution of carcinoma, only the gross figures are given, no reference being made to the prevalence per hundred thousand living in each age period, which tells a very different tale. The stroma of all tumours is dealt with on the lines that apply to carcinoma, and especially to artificial grafts. Gliosarcomata, for example, of the retina, are treated as probably neurocytomata. The term "duct carcinoma" is objected to, on the alleged ground that the tumours indicated have no distinctive features. Concerning hypernephroma, the author inclines to Adami's suggestion that the tubular forms are probably of renal origin and the more solid growths adrenal. Names of authorities are not always correctly given, *e.g.*, Hausemann for Hansemann, Langhan's for Langhans', Rouse for Rous. There is a good index, but no bibliography. The book is well worth having for its illustrations alone, and it represents solid work, without any padding. In a new edition the author may be encouraged to increase the size somewhat, so as to deal more fully with practical troubles in diagnosis.

[1] The Pathology of Tumours, by E. H. Kettle, M.D., B.S., 1916. London: H. K. Lewis & Co., Ltd.; Demi 8vo., pp. 224, with 126 illustrations. Price, 10s. 6d.

THE ENCYCLOPÆDIA MEDICA.

The third volume of the "Encylopædia Medica,"[1] with headings "Ch-Dy," is now before us. Like the two previous volumes, it deserves both praise and blame, and for the same reasons as before. The headings dealing with the skin, ophthalmic and infantile diseases are very full and excellent, quite like special treatises. But, just as in the previous volumes, they are out of scale, and provoke contrast. Some of the other headings are treated in an astonishingly futile and inadequate way. There is no heading for "Duodenal Ulcer," but it is dealt with under "Duodenum" in the following few and disappointing lines: "A simple ulcer is met with here, which may present all the clinical features of, and be clinically indistinguishable from, gastric ulcer. The ideas formerly entertained regarding the great frequency of ulceration of the duodenum as a sequel to burns have been modified somewhat during the last few years, merely as a result of more careful investigation into the truth of the old text-book statements. Simple ulceration may develope as a result of irritation from a large gall-stone." It would be difficult indeed to write poorer or more paltry stuff than this. We find salvarsan under the heading "Dioxydiamidoarsenobenzol," and dismissed in seven lines, as follows: "This is an organic compound of arsenic, better known as '606,' brought forward by Ehrlich for the treatment of syphilis; it is also known as the Ehrlich-Hata specific and as salvarsan; it has been given by intramuscular, by subcutaneous, and by intravenous injection; the enthusiastic early reports of its value have hardly been maintained. Neo-salvarsan is by many preferred, and it is stated to be better tolerated than salvarsan"! This is all that a gigantic encyclopædia, coming out in many volumes, has to say about salvarsan. Exactly the same number of lines are devoted to "Cissampelos," to "Coscinium," and to "Cotton Root Bark," but "Conium" is dignified with three times as much space. "Cocaina" and "Cocaine" form two separate headings, covering the same field, but apparently by different hands. Space given to different headings is as follows: "Chloroform," 30 pages; "Diseases of Choroid," 14 pages; "Disease of the Conjunctiva," 46 pages; "Christian Science," 17 lines; "Cicatrices," 5 pages; "Deformities," 57 pages; "Dermatitis herpetiformis," 6 pages; "Dermatitis traumatica et venenata," 14 pages; "Drug eruptions," 14 pages, with 3 plates, two coloured.

The following information under "Climate and Acclimatization" will be found interesting by Australians: "The white man's incapacity for manual labour is an important question throughout the tropics; it has necessitated the employment of Chinese labour in America, of coolies in Mauritius and Java, and of kidnapped natives from the South Sea Islands in Australia." So we see that the people who perpetrate articles in encylopædias at the other side of the world are getting on. The pundit who wrote this contribution has at least, and at length, realized that Australia really has white inhabitants, even if he does

[1] Encyclopædia Medica, Second Edition, under the direct Editorship of J. W. Ballantyne, M.D., C.M., F.R.C.P.E.; Vol. III., Chloroform to Dyspnœa; 1916. Edinburgh and London: W. Green & Son, Ltd.; Sole Agents for Sydney and Wellington, N.Z.: Butterworth & Co. (Australia), Ltd.; Royal 8vo., pp. 672. Price, £1.

paint them *en bloc* as kidnappers of South Sea Island natives. We see also that he at least, and at length, understands that if we do kidnap them it is not to eat them, but to make money, which is a very civilized proceeding, favoured even in Scotland.

THE NEW SOUTH WALES MEDICAL REGISTER

In the 1916 register of medical practitioners, published by the New South Wales Medical Board, an asterisk has been printed against the names of certain medical practitioners, from whom no communication has been received by the Board for a considerable time. A note is appended to the effect that if no communication is received from these practitioners during the year the names will be omitted in the next published list.

The following is the list of these names. We should be pleased if anyone in possession of definite information concerning these practitioners would communicate with Dr. G. H. Abbott, Secretary for the New South Wales Medical Board, 153 Macquarie Street, Sydney.

Date of Registration.	Name.	Date of Qualification.
1900	Bartlett, William	M.R.C.S., Eng., 1873.
1910	Baumgartner, Henry Spelman	M.B., M.S., 1886, Univ. Durh.; M.R.C.S., Eng., 1886; L.S.A., Lond, 1886.
1890	Birchall, Thomas Barrow	M.B., M.S., 1879, Univ. Glasg.
1891	Bloch, Oscar	State Exam. Certif., Berlin, 1891.
1884	Boyd, Nathan Ellington	M.D., Cooper Med. Coll., Cal., U.S.A., 1883.
1908	Boyd, Percival Crawford	L.R.C.P., Edin., 1879; L.R.C.S., Edin., 1879.
1876	Brennan, John McDonald	L.F.P.S., Glasg., 1863.
1897	Broom, Charles	L.S.A., Lond., 1865; M.R.C.S., Eng., 1865.
1869	Codrington, John Frederic	M.R.C.S., Eng., 1867; L.R.C.P., Lond., 1867; L.R.C.P., Edin., 1867; L.S.A., Lond., 1867.
1886	Cotterell, William	Lic., 1871, Mem., 1882, R.C.P., Edin., L.S.A., Lond., 1870.
1882	Crawford, James Robert	L.F.P.S., Glasg., 1855.
1878	Downie, Kenneth M.	M.B., M.S., 1866, M.D., 1875, Univ. Edin.
1886	Druitt, Lionel	M.R.C.S., Eng., 1875; L.R.C.P., Lond., 1877; M.D., 1882, M.S., 1877, Univ. Edin.
1878	Durham, John Charles Crozier	Lic., 1870, Lic. Mid., 1871, R.C.S., Irel.
1886	Edmunds, Daniel Taylor	L.R.C.P., Edin., 1883; M.R.C.S., Eng., 1883.
1900	Elliott, Henry Pritchard	M.B., M.S., 1864, Univ. Edin.
1899	Goding, Frederick Webster	M.D., North-Western Univ., Chicago, U.S.A., 1882.
1887	Goodall, William Ainslie	M.D., M.S., 1885, Victoria Univ., Toronto; L.K.Q.C.P.I., 1885, L.C.P.S., Ontario, 1885.
1893	Gordon, Edward Patrick	M.D., Victoria Coll., Ontario, 1890.
1891	Griffiths, William Arthur	L.R.C.P., Lond., 1887; M.R.C.S., Eng., 1887.
1908	Grinling, John Campion	M.B., 1884, M.D., 1900, Univ. Durh.
1895	Haig, Sam	L.S.A., Lond., 1868; M.R.C.S., Eng., 1863.
1889	Hare, Richard Isaac	L.R.C.P., Edin., 1871; L.F.P.S., Glasg., 1871.
1892	Harris, Stewart Hall	L.K.Q.C.P.I., L.M., 1867; L.R.C.S.I., 1866.
1897	Healy, Michael	L.K.Q.C.P.I., L.M., 1875; L.R.C.S., Irel., 1874.
1902	Herriot, Stuart	L.R.C.P., L.R.C.S., Edin., 1886.
1899	Hitch, Frederick	L.R.C.P., Lond., 1881; M.R.C.S., 1880, L.S.A., Lond., 1879.
1894	Horton, Edward Shelton	M.D., Univ. California, U.S.A., 1893.
1895	Irvine, Gerard James	L.K.Q.C.P.I., 1869; L.R.C.S.I., 1869.
1899	Jeffries, John Nagle	L.R.C.P., L.R.C.S., Edin., 1881.
1886	Keenan, Alfred James William	L.R.C.P., L.R.C.S., Edin., 1884.
1888	Kelly, Daniel Luke	L.R.C.S., Irel., 1869; L.R.C.P., Edin., 1871.
1887	Korff, Berthold	State Exam. Certif., Munich, 1884.
1898	Lalor, Joseph	L.K.Q.C.P.I., L.M., 1883, L.R.C.S., Irel., 1882.
1885	Lehane, Daniel	M.D., Queen's Univ., Irel., 1880.
1891	Lennhoff, Gustav	M.D., Univ. Berlin, 1890; State Exam. Certif., Berlin, 1889.
1882	Little, William	L.R.C.P., L.R.C.S., Edin., 1867.
1877	Lock, Ezekiel John	L.S.A., Lond., 1852.
1895	Lowson, William Fyfe Craik	M.B., M.S., 1890, Univ. Edin.
1895	McClure, William George	M.D., Univ. Glasg., 1847; M.R.C.S., Eng., 1847.
1888	McDonagh, Augustus William	L.S.A., Lond., 1875.
1895	McDonagh, Vincent Eustace John	L.R.C.P.I., L.M., 1892; L.R.C.S.I., L.M., 1892.
1898	McGee, William	L.R.C.S., Irel., 1882; L.M., 1883; K.Q.C.P.I.
1883	Mackenzie, John Hugh	L.R.C.S., Edin., 1880; F.R.C.S., Edin.
1874	McMullen, John Joseph Kyan	L.R.C.P., Edin., 1862; L.F.P.S., Glasg., 1862.
1890	McMunn, Robert Sydney	M.D., Manitoba Univ., Canada, 1897.
1887	McNeill, John Patrick	M.B., 1873, M.D., 1876, Trin. Coll., Dub.; L.R.C.S., Irel., L.M., 1873.
1891	Malcolm, John	M.B., M.S., 1885, Univ. Aberd.
1880	Marr, Joseph Bell	L.F.P.S., Glasg., 1860; L.R.C.P., Edin., 1864.
1885	Meeke, Arthur Henry Montgomery	M.B., M.D., 1885, Univ. Dub.; L.R.C.P., Edin., 1902.
1895	Miller, Alfred Henry	L.R.C.P., L.R.C.S., Edin., 1877.
1887	Mitchell, Adam Garrett	L.R.C.P., L.R.C.S., Edin, 1880.
1894	Momont, Louis	M.D., Univ. Paris, 1891.
1883	Moore, Arthur Malcolm	M.B., M.S., 1882, Univ. Edin.
1890	Moore, Henry Ogle	M.B., Univ. Dub., 1873.
1888	Murray, John James Goodlatte	L.R.C.P., L.R.C.S., Edin., 1878; L.A.H., Dub., 1883.
1887	Nagel, Gunther	M.D., Univ. Berlin, 1881; State Exam. Certif., Berlin, 1882.
1885	Newman, Dewitt Clinton	M.D., Cooper Med. Coll., San Francisco, U.S.A., 1883.
1895	Nugent, Edward Joseph	L.K.Q.C.P.I., 1872; L.R.C.S., Irel., 1866.
1883	Payne, Charles Alexander	L.S.A., Lond., 1879; M.R.C.S., Eng., 1870.
1906	Philpot, John Harvey	M.R.C.S., Eng., 1854; L.S.A., Lond., 1864; L.R.C.P., Lond., 1872.
1892	Ponder, Charles Frederick	M.B., M.S., 1889, Univ. Edin.
1898	Rand, Silas Charles	M.D., Rush Med. Coll., Ill., U.S.A., 1897.
1887	Rankin, Richard Power	L.R.C.P., L.R.C.S., Edin., 1885.
1883	Redmond, Walker	L.S.A., Lond., 1880.
1900	Reissmann, Charles Henry	M.B., B.S., 1899, Univ. Camb.; L.R.C.P., Lond., 1898; M.R.C.S., 1898.
1886	Rennie, John Taylor	M.D., Michigan Coll. of Med., U.S.A., 1884.
1892	Roth, Walter Edmund	L.R.C.P., Lond., 1892; M.R.C.S., Eng., 1892.
1899	Rutherford, Alexander Hamilton	M.B., M.S., 1898, Univ. Edin.
1876	Ryan, William	L.R.C.S., Irel., 1874; L.K.Q.C.P.I., 1875.
1904	Salkeld, Albert Ernest	L.R.C.P., L.R.C.S., Edin., 1900; L.F.P.S., Glasg., 1900.
1898	Sanders, Robert Corles	L.R.C.S., Irel., 1882.
1907	Schuett, Edward	M.D., Univ. Erlangen, 1902; State Exam. Certif., Erlangen, 1902.
1887	Simpson, Robert Arthur	M.B., M.S., 1874, Univ. Glasg.
1874	Smith, Edward Roberts	M., 1864; L.M., 1865; R.C.S., Eng.; L.S.A., Lond., 1866.
1880	Soule, Milan	M.D., Med. Dep., Univ. Vermont, U.S.A., 1869.
1879	Souter, John Clement	M.D., 1869, M.S., 1863, Univ. Aberd.
1888	Speer, Hugh Johnstone	M.D., Harvard Med. Coll., Harvard Univ., U.S.A., 1874.
1884	Stacpoole, Adam Richard	L.R.C.P., L.R.C.S., Edin., 1883.
1891	Stewart, John	L.K.Q.C.P.I., 1887; L.R.C.S., Irel., 1887.
1886	Stuart, William	M.B., M.S., 1881, M.D., 1885, Univ. Aberd.
1903	Taylor, Alfred Ernest	M.B., B.S., B.A.O., 1892, M.D., 1895, Univ. Dub.
1905	Thompson, Daniel Robert	M., L.M., 1861, R.C.S., Eng.
1902	Walch, Charles Nash Crosby	M.B., Univ. Durh., 1903; M.R.C.S., Eng., 1893; L.R.C.P., Lond., 1893.
1894	Wallace, Samuel Lane	L.R.C.P., L.R.C.S., Edin., 1871.
1907	Wallenberg, Paul	State Exam. Certif., Berlin, 1888.
1868	Wallis, Frederick Charles	M.R.C.S., Eng., 1883.
1896	Walsh, George Joseph	L.R.C.P., L.R.C.S., Edin., 1880.
1895	Weber, Johann August	M.D., Ch.D., 1876, Giessen; State Exam. Certif., Leyden, 1876.
1906	Weinberg, Solomon James	L.R.C.P., Lond., 1903; M.R.C.S., Eng., 1903.
1905	Wendler, Friedrich	M.D., Univ. Greifswald, 1901; State Exam. Certif., Greifswald, 1904.
1887	Westrum, Wilhelm Adolph	M.D., Univ. Munich, 1886; State Exam. Certif., Munich, 1886.
1884	Wilson, John Smith	L.R.C.P., Edin., 1873; M.R.C.S., Eng., 1873.
1885	Wilson, Peter Birnie	M.D., Cal. Med. Coll., U.S.A., 1884.
1894	Wolrige, Herbert Ernest Rhodes	L.R.C.P., Edin., 1879; M.R.C.S., Eng., 1879.
1898	Woodside, Robert Neville	M.B., 1896, B.S., 1897, Univ. Melb.

EDITH CAVELL MEMORIAL FUND.

The Committee of the Edith Cavell Memorial Association, a New South Wales organization which was established a few months ago for the purpose of creating, endowing and maintaining a worthy memorial to the heroic life and death of Edith Cavell, have appealed to the general public for the sum of £15,000, to enable them to endow a Rest House for Trained Nurses. Through the generosity of Mr. and Mrs. W. E. Shaw an eminently suitable house, standing in extensive grounds, has been acquired for the purpose. It is proposed that the Edith Cavell Memorial House at Summer Hill, Sydney, shall be available, primarily, for returned Army Nurses, and, as far as the accommodation may admit of it, for any trained nurses requiring recuperation. There is a tendency to make provision for soldiers, and to forget the claims which the self-sacrificing nurses accompanying the troops have on the public.

At the request of the Committee, the Council of the New South Wales Branch of the British Medical Association invite the members of that Branch to contribute to this fund. Cheques should be sent to Dr. R. H. Todd, the Honorary Secretary of the New South Wales Branch, B.M.A. Building, 30-34 Elizabeth Street, Sydney. The list of contributions will be published week by week in these columns.

The Medical Journal of Australia.

SATURDAY, AUGUST 26, 1916.

Epidemic Cerebro-Spinal Meningitis

In the present issue a full abstract of an important article by Dr. A. J. Chalmers and Captain W. R. O'Farrell is published. Every contribution by competent observers on the subject of epidemic cerebro-spinal meningitis must assist in placing the ætiology and pathology of this disease on a firm foundation. Up to the present a great deal of what is accepted as fact is mere surmise, and even the evidence of the *causa morbis* is not definitely established. It must be borne in mind that the fact that a bacterium is found in the body in persons suffering from a disease is not proof that that organism is the causal factor. The researches of the Khartoum bacteriologists covers much ground, and many lessons may be learnt from them. They have gathered data on which they build a theory regarding the route of the meningococcus in the disease.

In the first place, before an attempt is made to analyse the theory and to ascertain how much of it is based on proven fact, it is necessary to examine the evidence brought forward in favour of the *diplococcus intracellularis* of Weichselbaum and the *diplococcus crassus* being the causal organisms of the disease. They base their contention on the following claims: The meningococcus has been found in all cases of true epidemic cerebro-spinal meningitis, either in the naso-pharynx or in the peripheral blood or in the cerebro-spinal fluid. The organism can be obtained in pure culture from every case. Both these points may be accepted, because they coincide with the experience made by numerous observers, and because the bacteriological evidence is unassailable. The authors, however, do not give the details of their investigations on which this claim is based, and while they state that the meningococcus has been found within the first 24 hours of illness in the peripheral blood, they do not divulge in what proportion of the cases examined, nor do we learn the frequency of the presence of the coccus in the cerebro-spinal fluid. Until it can be proved that the germ is present in the blood during the early stages and in the cerebro-spinal fluid in the later stages in a high percentage of all cases, the information can only be regarded as suggestive. Their experiments with fluid passed through a Pasteur-Chamberland filter are extremely interesting, and, if confirmed by others, should suffice to negative Hort's theory. The third argument is that a disease resembling that of man can be reproduced by injecting pure cultures into monkeys. Many observers have produced a meningitis by the subdural injection of the meningococcus into monkeys. But a similar condition has been produced with other cocci. Other observers have failed to produce an epidemic form of meningitis by intravenous infection in monkeys. We are therefore driven to the conclusion that this claim is of limited importance and without definite support in other directions cannot be held to prove anything. That the bacterium can be recovered from the monkeys need not detain us further. The fifth point is that the sera of persons suffering from the disease can agglutinate and give positive complement fixation with heterologous meningococci. The authors cannot place much reliance on this, unless their next communication contains facts of a totally different order than those alluded to in the present article. In the historical part they state that the agglutination reactions of the meningococcus are unsatisfactory, and they refer to the discordant results obtained by various observers. Their own researches lead them to state that it would seem as if they had been dealing with different organisms or with different strains of the same organism. It appears that at times a patient's serum may give an agglutination in a dilution of 1 in 50. This evidence is therefore extremely weak. The sixth and seventh arguments depend on their opsonic index determinations. In each series but 50 leucocytes were counted. Strangeways, Major Greenwood and several others have proved beyond all doubt that no significance can be attached to measurements of this index when less than one or two thousand cells are counted. Moreover, no attempt appears to have been made to counterbalance the high experimental error by making a very large number of observations. We are therefore left in

the same position as before, and more cannot be claimed than that the meningococcus is probably the causal organism of cerebro-spinal fever.

Of far greater importance is the evidence on which they base their theory of the route of the meningococcus within the human body. They find that it enters the body through the mucosa of the naso-pharynx. In this situation and in the connected sinuses it gains a firm foothold, and when it is growing well passes into the blood stream. The evidence that this takes place appears to be sound. Its stay in the blood vessels appears to be brief, and the next place in which it is found is the cerebro-spinal fluid. The authors speak of the affinity which these organisms appear to have for the fluid. What the nature of this affinity may be is still obscure, and we would suggest that the methods of Goldmann might be utilized to investigate this problem. The changes in the choroid plexus are highly instructive, and would suggest the passage of the germ into the fluid. This route would explain the early implication of the lateral ventricles which has been noted by various observers. At the same time it would indicate that intrathecal injection of antiserum cannot effect a cure in many cases. The next point of importance in this investigation is original. Drs. Chalmers and O'Farrell have found evidence of an inflammatory reaction of the Pacchionian bodies. The ingestion of cellular elements into these bodies, at times containing meningococci, is a nice theoretical explanation of the increased pressure of the cerebro-spinal fluid inside the theca. The pathological evidence seems to be strongly in favour of the meningococcus being the causal organism of the disease, notwithstanding the fact that this evidence is entirely inferential and indirect.

Further researches into the immune bodies are required before the arguments adduced in regard to the resistance of carriers and persons treated by vaccines can be accepted. The arguments are ingenious but inconclusive. We are, however, strengthened in the view frequently expressed in this journal that the most rational method of dealing with this disease, both prophylactically and curatively, is by means of vaccines.

THE REUNION OF NERVES.

The fact that the ends of a severed nerve supplying a group of muscles may be joined together so that complete control may be ultimately regained over the use of the muscles has been known to medical science for nearly a century. Flourens, that enterprising *savant* who served for so many years as Perpetual Secretary to the *Académie des Sciences*, divided the nervous trunks passing to the muscles on the upper and lower sides of the wing of a fowl. He crossed the severed branches of the brachial plexus and sutured the upper and lower ends of the divided nerves in such a way that the central end of the nerve to the muscles on the upper side of the wing was joined to the nerve supplying the muscles on the under surface of the wing, and the central end of the nerve to the muscles on the lower side was united to the nerve supplying the muscles on the upper surface of the wing. After some months the fowl could fly. Not only had regeneration of the nerves occurred, but the fowl had regained control over the movements of the muscles which had been paralysed by the severance of the nerves. The application of this discovery to surgical practice has been only partially successful. At times restoration of function has followed the suture of a divided motor or sensory nerve, but not infrequently there has remained more or less impairment of function. The reasons for this failure are, no doubt, in part, due to incomplete knowledge of the distribution of the human nerves in their physiological aspect and in part to inadequate training of the patient in regard to the central control over the regenerated fibres, but it seems not unlikely that further knowledge of the conditions of regeneration is requisite for the proper regulation of the surgery of nerve-suture.

In 1898 J. N. Langley, of Cambridge, published the results of his experiments on the union of the vagus nerve with the cervical sympathetic trunk in the cat. He found that, when the central end of the severed pneumogastric nerve was joined to the end of the cervical sympathetic trunk in connexion with the superior cervical ganglion, the effects of the paralysis gradually diminished. Some months later, on stimulation of the vagus nerve, all the effects of excitation of the sympathetic nerve were obtained, *viz.*, retraction of the nictitating membrane, opening of the eyelid, dilatation of the pupil, constriction of the blood-vessels of the ear and movements of the hairs of the face. Great care was taken to prove that these results were not due to sympathetic preganglionic fibres finding their way to the superior cervical ganglion by some devious path. The fibres of the pneumogastric nerve had thus made a functional union with the superior cervical ganglion. The fibres of the spinal end of the cervical sympathetic trunk did not, however, make any union with the peripheral end of the vagus nerve, and no regenerated fibres passed to the heart and stomach.

These experiments by Langley have been recently repeated in the Physiological Laboratory of the University of Edinburgh. R. Tsukaguchi[1] has made

[1] *Quarterly Journal of Experimental Physiology*, Vol. IX., p. 281, 1916.

some very complete studies of the regenerative processes by modern histological methods on dogs and cats in which the nerves had been divided and sutured by Sir Edward Schäfer. The physiological effects of the suture were examined by Schäfer and by Schäfer and Feiss[2] and found to correspond closely with those observed by Langley. The histological examination of the divided nerves, of the neuromata, that form at their severed ends, and of the cicatricial tissue between the neuromata, shows a considerable number of regenerated fibres. The upper trunk of the sympathetic contains many of these fibres, which, no doubt, explain the return of function. These fibres are partly derived from the lower trunk of the cervical sympathetic nerve and in part from the vagal nerve. The greater number appear to come from this latter source. The lower part of the vagal trunk also contains many regenerated fibres, though these do not produce any noticeable reaction when this trunk is stimulated. These regenerated fibres seem to be mainly derived from the lower sympathetic trunk. Fibres from the central vagal trunk also make their ways in small numbers across the cicatrix into the lower vagal nerve.

The presence of histologically normal nerve-fibres in nerve trunks which have lost their normal functions has been often observed. When the nerve to a paralysed muscle in a case of infantile paralysis is examined with the microscope many normal medullated nerve-fibres will be seen. Electrical stimulation of such a nerve causes no movement in the muscle fibres. The suggestion thus arises that these fibres are afferent and not efferent in their physiological conduction.

It is a welcome addition to medical science to have further evidence as to the adaptability of one part of the nervous system to change its function and replace a part that is lost. Nerve cells whose processes usually pass to the heart, stomach and intestines can apparently send their neurones to the iris, the hair follicle and the vascular wall.

MEDICAL ETHICS.

The Council of the Victorian Branch of the British Medical Association have considered the position of a medical practitioner who allows his name to be mentioned in the daily press in connexion with the report of the progress of a patient under his care. In some cases a bereavement notice is inserted into a newspaper, in which the name of the doctor in attendance is mentioned and thanks are expressed for the manner in which he had carried out his duties. The Council uphold the provision in the "Principles of Medical Ethics" formulated by the Federal Committee and endorsed by all the Branches in the Commonwealth, to the effect that members should discourage the publication in the lay press of paragraphs notifying their attendance upon prominent persons. Every medical practitioner recognizes the general rule that self-advertisement is not permissible, and that a good reputation can only be built up on the basis of good work. Unfortunately, it has been found advisable to allow notices to appear in the lay press of changes of address and similar circumstances. These notices, it is true, are limited, and the wording prescribed in some of the States, but nevertheless the fact has a baneful effect on practitioners who are inclined to utilize advertisement for the purpose of obtaining patients. The notices referred to in the provision quoted above are at times inserted without the knowledge of the doctor, but a cautious man is unlikely to be caught napping, and in nearly every instance a little forethought would have had the effect of preventing the objectionable statement from seeing daylight. Ethical codes are extremely useful as a guide to young men, but common-sense and conscience are also excellent guides, and this is borne out by the experience of the various Branches throughout the British Medical Association that delinquents usually disclaim responsibility. A man of science, who is jealous of his good name, will not be tempted to appeal to the world at large for the purpose of persuading the public that he is worthy of confidence. His contributions to the medical or scientific press will establish his reputation as a scientist in the eyes of his *confrères*, and his successes in practice will have same effect among his patients. Australian practitioners have no need to adopt American methods. The appearance of a medical practitioner's name in the public press in any connexion, save in the case of a man or woman holding a public position, is rarely advisable and usually unpermissible, and in the majority of instances he should be regarded as being responsible for it. In a similar manner it is often possible to judge a medical practitioner's conception of medical ethics by studying the brass plate outside his consulting-rooms.

[2] *Quarterly Journal of Experimental Physiology*, Vol. IX., p. 329, 1916.

Naval and Military.

The 194th, 195th, 196th and 197th lists of casualties contain 179 names of officers killed in action, died of wounds or of other causes, wounded, missing and sick. Notwithstanding this large number, only one of the medical men is contained. Captain C. J. Tozer, of Cootamundra, has been wounded.

The following has appeared in the *Commonwealth of Australia Gazette*, No. 104, under date of August 15, 1916:—

Appointment.

3rd Military District.

Australian Army Medical Corps Reserve—

Honorary Lieutenant-Colonel R. Stawell to be Consultant Physician. Dated 14th August, 1916.

Cancellation of Rank.

3rd Military District.

Australian Army Medical Corps—

The temporary rank and pay of Major granted to Captain (provisional) L. J. C. Mitchell is terminated. Dated 31st July, 1916.

4th Military District.

Australian Army Medical Corps—

The temporary rank and pay of Major granted to Captain C. L. Clarke is terminated.

Promotion.

3rd Military District.

Australian Army Medical Corps—

Captain (provisional) S. G. L. Catchlove is granted temporary rank and pay of Major, at rate prescribed by Universal Training Regulation 160, whilst holding appointment at No. 5 Australian General Hospital. Dated 1st August, 1916.

Army Medical Corps.

To be Temporary Major—

Captain W. B. Ryan, whilst employed on Sea Transport Staff.

Abstracts from Current Medical Literature.

THERAPEUTICS.

(70) Emetine in Amœbic Dysentery.

J. G. Thomson and D. Thomson have made some observations on the effect of the administration of emetine on the free vegetative forms and cysts of *Entamœba histolytica* and *Entamœba coli* (*Journ. Royal Army Medical Corps*, June, 1916). They believe that treatment should be commenced immediately that blood and mucus have been found in the fæces. Once the course of emetine has been started it should be continued until its completion. Their routine practice has been to give half-grain doses hypodermically, twice daily, until at least seven grains have been administered. After such a course they have invariably failed to find either *Entamœba histolytica* or its cysts on microscopical examination of the fæces, even when the microscopical examinations were continued for several weeks after the cessation of the treatment. In one patient they observed a relapse after two courses in which four grains of emetine had been given on each occasion. The treatment, however, fails in those cases in which extensive and irreparable destruction of the intestinal mucosa has taken place. Such cases come to light at post-mortem examinations. The authors relate the histories of four cases of recent dysentery which had not been treated with emetine. The patients came under their care when blood and mucus were no longer present in the stools. Each patient received a single injection of one-third to two-thirds grain of emetine. The stools were found on microscopical examinations, made four days after the injections, swarming with vast numbers of *tetragena* cysts. The authors consider that there is little doubt that the single dose of emetine acts beneficially on the patient by destroying large numbers of the vegetative entamœbæ, and, also, by stopping their active multiplication, but, on the other hand, it has the effect of giving rise to the encystment of the parasites, so that the patient is converted into a dangerous carrier. The course of treatment must be efficient and complete before the patient is discharged from hospital. As the result of 143 thorough microscopical examinations of patients, submitted to full and complete courses of treatment with emetine, the investigators have never found any formation of encysted forms. The authors have made a systematic examination of the fæces in four carriers who passed great numbers of cysts in their stools. These men were treated with half-grain doses of emetine, twice daily until six grains had been given. At the same time they received two drachms of magnesium sulphate every four hours, to ensure rapid evacuation of the bowels. The patients were examined three days before the treatment was initiated and the daily examinations continued for one week after the cysts had disappeared. These patients were not followed further. No changes were noted in the fæces for two days, but, on the third day, the relative proportion of one-nucleated and two-nucleated cysts had increased. On the fourth day the number of cysts had diminished. On the fifth day cysts were present, but on the sixth day none were found. The treatment was continued for one day more. The authors are of opinion that emetine does not kill cysts, but that the drug acts on the vegetative forms which produce the cysts and destroys them. Emetine appears to be without action on *Entamœba coli*. The authors have found both free forms and cysts persisting in the stools after complete course of emetine. Experiments can only be conducted with difficulty on this parasite, since it disappears from the fæces without treatment or after simple purgation. The parasite seems quite harmless and causes no serious result when present.

(71) Intravenous Injections of Sodium Citrate.

A. L. Garbat has tested the effect of injecting sodium citrate into the veins of four men (*Journ. Amer. Med. Association*, May, 1916). He has endeavoured to decide whether sodium citrate by itself gives rise to harmful effects, whether it can be injected repeatedly without deleterious action, and whether blood suspended in sodium citrate solution is viable and capable of exercising its functions. Four patients, not suffering from any anæmia, have received forty intravenous injections of varying amounts of aqueous solutions of sodium citrate. The total amounts administered have been 9 gm., 13 gm., 12 gm. and 19 gm. No severe untoward symptoms have been observed. After eight of the injections slight chills and transient fever have been noted. He concludes that sodium citrate has no cumulative action, and that it may be injected repeatedly. The author has employed for transfusion a mixture of 100 c.cm. of 2% aqueous solution of sodium citrate with 900 c.cm. blood. This mixture is, however, liable to coagulate. He has therefore increased the strength of the solution of sodium citrate to 0.25%. He uses the same proportions of blood and citrate solution, and has not observed clotting of this mixture. He thinks this is the most useful fluid for transfusion. He has employed it in the treatment of forty patients. The urine from these patients has been examined after the transfusion, and no evidences of renal irritation have been obtained.

(72) Epifascial Medication.

A. L. Wolbarst believes that the epifascial administration of salvarsan and mercury is a distinct improvement on the intra-muscular method (*Medical Record*, June, 1916). The epifascial path of absorption diminishes the painfulness, while retaining the greater effectiveness of the intramuscular as compared with the intravenous injection. The site of injection is the fascia lata, at the side of the buttocks. The author has given over two hundred doses of mercury by this means, but only fifteen injections of salvarsan. He assumes that the intramuscular injections are more efficacious than the intravenous injections. He then institutes a comparison between intramuscular and epifascial administration. Pain is absent from 50% of epifascial injections. The medium employed for the drug exercises no influence on the pain produced. The slight pain of introducing the needle can be controlled by the use of a drop or two of alypin or novocain. The author describes in detail the technique of the method.

(73) Intraspinal Injections of Mercury.

G. W. Hall, H. Culbertson and C. Slaght describe the immediate effects of intraspinal injections of mercurialized serum, mercuric chloride and mercuric succinimide in eighteen patients, each of whom has received several injections (*Journ. Amer. Med. Association*, June, 1916). Pain is rather severe, localized in the back and extending down the limbs. It has been present in all the cases. The pain has not been so marked after the first injection of mercurialized serum, but it has increased with each subsequent injection of serum. With the perchloride and with the succinimide the pain has been most severe with the first injection, while it has lessened at each subsequent injection. The temperature has risen after each injection. The height of the fever has varied from 99° F. to 103° F. The fever sets in four or five hours later with the mercurialized serum. The number of leucocytes in the cerebro-spinal fluid has increased after every injection. The leucocytosis has lasted for seventy hours. Polymorphonuclear cells have predominated at first in the differential counts. As the leucocytosis has passed away the lymphocytes have become the dominant variety present. Headache and pain in the back of the neck have been noted in ten patients. Insomnia and restlessness have been observed after three injections. In two cases there has been retention of urine, which needed the use of the catheter for twenty-four hours. Nausea and vomiting have occurred in three patients. The trouble has lasted for twenty-four hours. Urticaria has occurred twice after the use of mercurialized serum. The doses employed have been 25 c.cm. mercurialized serum, one-hundredth grain of corrosive sublimate diluted to 1 c.cm. and mixed with 20 c.cm. cerebro-spinal fluid and one-fiftieth grain of mercuric succinimide similarly diluted with cerebro-spinal fluid.

(74) Metabolic Effects of Salicylates on Man.

W. Denis and J. H. Means have studied the action of sodium salicylate on the output of nitrogen, phosphorus and uric acid, and on the respiratory exchange of three men (*Journ. of Pharmacology and Exper. Therapeutics*, June, 1916). The conclusions have been drawn from the results of analyses of

the urine, fæces and blood. The respiratory exchange has been determined from the amount of oxygen absorbed and the quantity of carbon dioxide excreted in Benedict's "Universal Apparatus." The investigators have found that the administration of large doses of 100 grains of sodium salicylate increases the excretion of nitrogen, phosphorus and uric acid. In one subject this augmented excretion has been accompanied by an increase in the basal metabolism and by symptoms of salicylate intoxication. In the other normal subject a greater increase in the excretions has been noted, but the basal metabolism has remained unaltered. The third subject, who suffered from mild sepsis, has shown results similar to those in the second normal individual. No change in the respiratory quotient has occurred in any of the subjects.

UROLOGY.

(75) Single Pelvic Kidney.

J. D. Rolleston describes a specimen of a single pelvic kidney obtained from a mentally defective boy, aged 14 years, who had died of scarlet fever (*British Journ. of Children's Diseases*, March, 1916). At the post-mortem examination no kidneys were found in the usual situation, but a single kidney was found on the right side, within the brim of the pelvis, lying in apposition to the posterior wall of the bladder. The kidney was irregular in shape, and could be described as a *rein en galette*. It weighed four ounces and measured 3¼ inches by 1¼ at the upper part. There was some dilatation of the pelvis and calices. From the hilus a single ureter issued. It was dilated and hypertrophied, was 7½ inches long and at its widest part 1 inch broad. There was no malformation of the genital organs. The author points out that single or asymmetrical kidneys are extremely uncommon. Congenital displacement or renal dystopia is less uncommon, but is nevertheless a rarity. He emphasizes the distinctions between true renal dystopia and floating kidney, and points out that, in the former, the organ has an unusual form, whereas, in the latter, it is normal. In the majority of cases the dystopia is discovered accidentally or at a post-mortem examination. He also points out that the association of a mental defect with a renal anomaly is interesting. This association has been noted in other cases. The anatomical peculiarity of dystopic kidneys are: (1) the firm fixation, owing to the strength of the vascular pedicle by which it is anchored, (2) its abnormal shape, (3) the multiple blood supply, and (4) the short length and rectilinear direction of the ureter.

(76) Hernia of the Urinary Bladder.

A. P. Heineck (*The Medical Times*, July, 1916) discusses the subject of hernia of the urinary bladder, of which he has traced 164 references in the literature and from his own practice. He finds that a part or the whole of the urinary bladder may escape through any of the hernial orifices of the lower abdominal wall. The hernia may be congenital or acquired, and is usually unilateral. He recognizes hernia of the *linea alba*, of the obturator, of the femoral or of the inguinal regions. Among the ætiological factors, he mentions increased intra-abdominal pressure, conditions which weaken the abdominal wall, and diseases of the lower urinary organs that impair the expulsive force of the bladder or hinder the outflow of urine, and pre-existing hernias and hernial sacs. The invaginated bladder process may be the sole content of the hernia, or it may be associated with other organs. He emphasizes the necessity of operating in every case of hernia of the urinary bladder, and mentions as the only contra-indications, extreme old age and the co-existence of a pathological condition which renders any operation unjustifiable. He finds that the mortality of operations for the radical cure of hernia is practically nil, and claims that its results are highly satisfactory. In discussing the steps of the operation, he warns the surgeon against any structure looking like a second sac, until the introduction of a sound into the bladder proves the independence of the sac from the urinary bladder.

(77) Hæmatocele of the Tunica Vaginalis.

C. M. Whitney points out that hæmatocele, strictly speaking, should mean an effusion of blood into the cavity of a normal *tunica vaginalis*, and that when bleeding takes place into a hydrocele or spermatocele the term is incorrect (*Boston Med. and Surg. Journ.*, July 13, 1916). It is, however, usual to speak of hæmatocele to indicate all intra-scrotal sacs containing blood. The most frequent form of hæmatocele is the effusion of blood into a hydrocele. This may be caused by trauma. As a rule, there is extensive ecchymosis in the scrotum, which is gradually absorbed. At times the effused blood does not contribute materially to the size of hydrocele, and the hæmatocele is only discovered later by the very dark brown or black colour of the fluid when tapping is performed. The author points out that the development of a hæmatocele within the cavity of a hydrocele frequently leads to its cure. At times the bleeding takes the form of a capillary oozing from the walls of an over-distended sac after tapping. He holds the opinion that the bleeding is at times the result of arterial disease, and quotes cases in support of this contention. He refers to some rare cases of primary hæmatocele occurring in hæmophilia and scurvy. Hæmatoceles may assume great size, and, by pressure upon the tissues, may cause danger to life. He records a case in which the bleeding resulted from a fall on to the shaft of a waggon. The scrotal tumour was as large as an adult's head. On being punctured, fluid containing a large amount of bright blood escaped slowly. Three quarts were removed, and a large, soft mass of clot remained behind. The patient was unable to submit to an operation at the time. Six weeks later the sac contained even more fluid than before, and the patient was in a desperate condition. The scrotal tissues were sloughing. The whole tumour mass was removed in one piece. For small collections of blood in the *tunica vaginalis* rest and cold application usually suffice to effect a cure.

(78) Seminal Vesiculitis.

E. W. White finds that in about 90% of cases of seminal vesiculitis the patients are of a highly neurotic temperament (*Urologic and Cutaneous Review*, July, 1916). The cases are of long standing, and the persistent pain leads to nervous irritability. The mucosa covering the vesicle and the trigonum is hyperæmic, œdematous or definitely inflamed. In the majority of cases there is a muco-purulent discharge. Pain referred to the perineum is common. At times it is slight and there is a sensation of dragging, drawing, fullness and pressure. The testicular symptoms take the form of recurrent attacks of epididymitis. The sexual symptoms are progressive, and in the end there may be complete loss of desire and impotency. Painful orgasm, hæmospermia, and pyospermia are common accompaniments of seminal vesiculitis. The abdominal symptoms are due to involvement of the peritoneal investment, and may simulate appendicitis, ureteral colic, etc. The author distinguished an acute catarrhal type, a fibrous or sclerotic type, a suppurative type and a pan-inflammatory type. He discusses the indications for operative treatment, and illustrates his remarks by citing typical cases. He advises vesiculectomy in all cases of multiple abscess with extensive destruction of the tissues. The same treatment is advisable for cases of long standing with hard, fibrous, sclerotic vesicles leading to bladder changes. The vesicles should also be removed when there are marked symptoms referable to the ureter and surrounding tissues. As a rule, vesiculectomy yields satisfactory results in selected cases of extreme nervous origin. Vesiculotomy is recommended for cases with spermatorrhea and when there is pus and blood in the ejaculate. He also suggests this treatment for vesiculitis of tubercular origin.

(79) The Futility of Tuberculin in Genito-Urinary Tuberculosis.

A. Hyman (*Journ. Amer. Med. Assoc.*, April 29, 1916) has employed Rosenbach's tuberculin in 13 cases of genito-urinary tuberculosis. The treatment was instituted in some cases after operation, while in the remainder the condition was inoperable. Two of the patients improved, but no benefit was derived from the injection in the remaining 11. The author doubts whether the tuberculin contributed to the improvement in the two cases. Several of the patients developed additional tubercular foci during the course of the treatment. The author therefore concludes that Rosenbach's tuberculin is of no definite value in the treatment of tuberculosis of the genito-urinary tract.

EPIDEMIC CEREBRO-SPINAL MENINGITIS.

In view of the prevalence of epidemic cerebro-spinal meningitis in many States of Australia at the present time and of the obscurity attaching to many points in the epidemiology, ætiology and control of the disease, the publication of an elaborate research into the various matters connected with this disease must be regarded as important. No apology is therefore offered for the following full abstracts of an article by Dr. A. J. Chalmers, the Director of the Wellcome Tropical Research Laboratory, Khartoum, and Captain W. R. O'Farrell, the Protozoologist at the same Institution. The article has appeared in the issues of May 1 and 15, 1916, of *The Journal of Tropical Medicine and Hygiene.*

Historical.

The authors begin with one of the best historical accounts yet published. They find that the first undoubted records date back to the Geneva epidemic of 1805 and to the American epidemic of 1806. From this date onward the disease has occurred almost continuously throughout the world. The first record of its appearance in sub-tropical countries refers to an epidemic in Algiers in 1840-1847. From 1876 until the present day it has been noted in various tropical areas.

Although the meningococcus of Weichselbaum was first accurately described in connexion with cerebro-spinal meningitis in 1887, Klebs associated a coccus with this disease as long ago as 1875. During the period 1890 until 1893 a controversy was indulged in by numerous bacteriologists as to the exact nature of Bonomé's streptococcus of epidemic cerebro-spinal fever, Foà's meningococcus and the *diplococcus pneumoniae.* Jaeger found in 1895 the pneumococcus, a streptococcus and an intracellular Gram-positive diplococcus morphologically resembling the gonococcus in different cases in one epidemic in Stuttgart. Shortly after this, attention was directed to the epizoötic form of cerebro-spinal meningitis in horses in which a coccus closely resembling Weichselbaum's organism was noted. In 1913 the authors found an organism in the naso-pharynges of persons associated with patients suffering from epidemic cerebro-spinal meningitis in Omdurman. They identified this organism as von Lingelsheim's *diplococcus crassus.* Later the same organism was isolated from persons actually suffering from the disease. They describe it as a Gram-positive-Gram-negative diplococcus, occurring at times in short chains. In 1898 Still showed that posterior basal meningitis was associated with an organism indistinguishable from the meningococcus. An account of the work conducted after 1899 is given, and the authors give von Lingelsheim's descriptions of the organisms found in the naso-pharynges of contacts. These include: *Micrococcus catarrhalis, diplococcus flavus* I., II. and III., *diplococcus mucosus* and *micrococcus cinereus.* In 1909 Elser and Huntoon published an account of the cultural, biochemical and serum reactions of the meningococcus and its allies. In the same year Dopter described his pseudo-meningococcus. They call attention to the fact that while this organism was shown not to be agglutinated by meningococcus serum the agglutination reactions of the true meningococci are very unsatisfactory. In 1915 Crowe wrote: "No Gram-negative organism isolated from the naso-pharynx can be proved to be a meningococcus. No Gram-negative organism which resembles even faintly a meningococcus can be regarded with certainty as incapable of producing meningitis." They therefore consider that the matter stands in need of elucidation.

In 1915 Lundie, Thomas and Fleming, and also Donaldson, described the pleomorphism of the meningococcus, and in the present year Hort, Lakin and Benians called attention to the possibility that the causal organism of the fever was filterable. The authors have repeated the experiments of Hort and his colleagues, and have obtained uniformly negative results.

A mass of evidence is adduced to show that the meningococcus is found regularly in the cerebro-spinal fluid of persons suffering from the disease, and also in the urine, blood and naso-pharynges. Sophian, Westenhöffer and others have found it in complications of cerebro-spinal meningitis, such as arthritis, pyelitis, pneumonia, endocarditis and purulent conjunctivitis. They mention that, while but few attendants have acquired the disease, direct infection has been described, and numerous contacts are found harbouring the meningococcus in their naso-pharynges. Kiefer infected his own nose accidentally, and a severe rhinitis resulted, but no meningitis. They explain this on the assumption that it is possible that the coccus never got into the system. One of the authors accidentally infected himself with the meningococcus in the thumb. Hæmorrhagic granulations developed, the lymphatic glands became enlarged and a mild fever persisted for months. No meningitic symptoms were seen. They assume that the meningococcus did not enter the blood-stream.

In the next place they review the work done on animals. It has been shown that monkeys can be infected by subdural injections of the meningococcus, but not by injections into the blood-stream, or viâ the nose. Further, Bettencourt and França and Wassermann and Kolle were unable to infect monkeys by means of fresh cerebro-spinal fluid; the authors failed at first, but succeeded later. Davis tested the agglutinating power and the opsonic index of the blood of persons suffering from the fever. He found that the meningococcus multiplied in two normal defibrinated bloods, but was killed in four others. It was also killed in the defibrinated blood from patients after the tenth day of illness. The bactericidal power of the serum of patients seemed to be greater than that of normal blood. This power was diminished by heating the serum to 60° C. for 30 minutes. Davis further found that the phagocytic index of the serum of convalescents between the second and seventh week was 11.1, while that of normal serum was 13 and that of heated serum 0. Several observers have found that the opsonin content of normal cerebro-spinal fluid is practically nil, whereas from the sixth day of illness onward it rises quite distinctly.

In regard to treatment, Jochmann first experimented with a specific immune serum in 1905. Flexner's serum was introduced in 1906, and in 1907 Davis used killed meningococci for normal persons and for patients. Sophian and Merck demonstrated in 1913 that persons inoculated with meningococcus vaccine remained immune for one year.

Soudan Epidemics.

Drs. Chalmers and O'Farrell record their own researches, but point out that the results of their investigations and observations have reference to the conditions obtaining in the Soudan. They may or may not be applicable elsewhere. In regard to the frequency of epidemic cerebro-spinal meningitis, they have only been able to trace records of a few cases from 1889 to 1898. In 1915 a very large number of cases were observed on the White Nile, at Khartoum, on the Blue Nile, and at Sennar, and at Kordofan. A very large number of examinations for the causal organism revealed a Gram-negative coccus, and in one case they met with a Gram-negative-Gram-positive coccus. The cerebro-spinal fluid withdrawn at an early stage is usually turbid, and contains in a case of average severity 28,100 cells per c.mm. The blood at the same time contains 9,450 leucocytes per c.mm. The cerebro-spinal cells consist of 98% polymorphonuclears and 2% mononuclears. In Gram-stained specimens 100 polymorphonuclear leucocytes contain on an average 144 non-encapsuled Gram-negative diplococci. Many cocci are found lying free in the spinal fluid. On rare occasions in rapidly fatal cases the cerebro-spinal fluid is clear of cells, but contains many organisms.

The Diplococcus.

The Gram-negative diplococcus usually measures 1 μ in diameter, and is entirely Gram-negative. This character is not altered after one and a half years of laboratory life. The coccus is an obligatory aerobe, and flourishes best at 37° C. upon media containing much protein and some simple sugar. It can be trained to a saprophytic existence upon laboratory media. It dies out at 50° C., and no growth occurs at 22° C. or lower. When the deposit from cerebro-spinal fluid is sown on Buchanan's medium red, loosely-attached, glistening colonies appear, while the fluid at the bottom of the tube assumes a yellow fluorescence. Colonies grown on "nasgar" are greyish-white, smooth and glistening, and, when viewed by transmitted light, appear to consist of a yellowish centre, surrounded by greyish translucent zone.

The authors call attention to a fallacy which is apt to occur when carriers are being looked for. This consists in

the presence of a Gram-positive streptococcus, often in the form of a diplococcus which lies hidden away in the depth of an apparently typical colony.

In regard to the sugar reactions, they found that the coccus yielded acidity without gas with glucose and often with maltose. Acidity was at times produced in fructose, galactose and arabinose. It has, however, been shown that heat acting in the presence of an alkali on lævulose may produce glucose, and that galactose may yield glucose on hydrolysis. The Anglo-Egyptian Soudan strains yield acid without gas in glucose, and at times arabinose and in more than half the examinations in maltose; neither acid nor gas in fructose or galactose, xylose or rhamnose, in lactose or saccharose, in raffinose, in dextrin, inulin, amylum or glycogen, in amygdalin, salicin, helicin, or phloridzin, in glycerol, erythrol, adonitol, dulcitol, mattitol or sorbitol, or in inosite. These determinations were conducted quantitatively. The results of these investigations are given in tables, to which we refer the reader. Their researches show that the fermentative power of the strains is somewhat lessened with the age of the growth. The strains did not reduce neutral red nor alter litmus milk. They are non-hæmolytic. They do not produce sulphuretted hydrogen when grown in lead acetate broth, nor do they produce indol. They do not reduce nitrates, and the Voges-Proskauer test is negative. They are not destroyed by bile salts. On the ground of these reactions the authors conclude that their strains belong to the group known as *diplococcus intracellularis* Weichselbaum.

Serum Reactions.

In dealing with the serum reactions, they state that the agglutination and absorption of patients' sera tested against heterologous meningococci have sometimes been successful, giving agglutination up to 1 in 50 and partial agglutination with higher dilutions. The absorption tests have sometimes appeared satisfactory, while at others the results have been negative. Complement fixation with heterologous organisms is sometimes positive and sometimes negative. They have therefore determined to reserve a discussion of the serum reactions other than opsinins for a future communication. They regard the opsonins as of greater importance than other immune bodies from the point of view of treatment and prophylaxis. In each of their determinations, 50 leucocytes were counted. In each case the total number of cocci in the leucocytes, the leucocytic index and the opsonic index, with both heated and unheated serum, are given. The opsonic index of the blood serum in untreated cases was found to be 0.5 with unheated and 0. with heated serum. It was between 0.22 and 0.33 in unheated cerebro-spinal fluid. They return to this subject when dealing with treated cases.

Pathogenicity.

The next series of experiments deals with the pathogenicity of various strains. Lumbar infection of monkeys resulted in death after 37½ to 4 hours. Post-mortem the brain and spinal cord were intensely congested, and the cerebro-spinal fluid contained a large increase of polymorphonuclear leucocytes, enclosing typical diplococci and free diplococci in the fluid. All attempts to infect goats by intracranial, lumbar, intravenous and intranasal injections proved negative. They also failed with donkeys. White mice were readily killed by intraperitoneal injections, and the cocci were recovered from the heart's blood. The cerebro-spinal fluid obtained during life from a very severe and rapidly fatal case of the disease was filtered through a Pasteur-Chamberland filter, and the filtrate injected into monkeys intraspinally with negative results. Intravenous, intraperitoneal and subcutaneous injection of monkeys, and attempts to infect via the nose all proved negative. They found that early subcultures reproduced the disease in monkeys, while later subcultures of the same strain failed to do so.

Carriers.

They then turned their attention to the cocci discovered in the naso-pharynx of the attendants upon patients. Bacteriological evidence proved these cocci to be true meningococci. The opsonic index of the blood serum, unheated, varied between 3.5 and 6, and of the heated serum was 0.2. The average for unheated serum works out at 4.7, and for heated serum 0.2. They compare this with the average in untreated cases for unheated serum, 0.5, and for heated serum, 0. The leucocytic and opsonic indices are therefore much higher in the attendants than in patients who have not received any treatment. They explain this on the assumption that auto-vaccination in suitable persons produces a body reaction against the organism.

The authors have examined small communities in the neighbourhood of definite cases. In all, 847 persons were tested, and 10.1% were found to be carriers. In the local jail 20% were found to be carriers.

Relation of Diplococcus to the Disease.

In regard to the distribution of the organism in the body, the naso-pharynx, the peripheral blood (early in the disease) and the cerebro-spinal system were the only sites from which the meningococcus was recovered. They have not been able to satisfy themselves of any portal of exit other than the nose. In regard to the site of entry, they adduce evidence that this is exclusively the nasal mucosa. At times there is no trace of inflammation, and the phagocytes are few in number. The cocci have been found in the lymph spaces, below the epithelium of the mucous membrane of the ethmoid cells.

A small community of Nyam-Nyams, living under very insanitary conditions in Omdurman, were attacked by the disease. Five out of 14 died of fulminating cerebro-spinal meningitis. The opsonic index in these people was very low. In a later portion of the paper they describe the effect of improved hygienic conditions and of vaccination on the uninfected individuals of this community. They claim that insufficient food, overcrowding, over-exertion or the lack of inherited tendency to resist the organism may determine the susceptibility toward the disease.

At the conclusion of the first part of the paper and the opening of the second part they deal with the question of the classification of the various cocci, including the meningococcus. They also enter into a discussion of the bacteriology of the Gram-negative-Gram-positive coccus which they show to be the *diplococcus crassus*.

In support of the contention that the meningococcus is the true cause of epidemic cerebro-spinal meningitis, they adduce the following arguments:—

(1) They have found it in all cases of true epidemic disease examined.

(2) It can be obtained in pure culture from these cases.

(3) The pure cultures cause a disease in monkeys resembling that of man.

(4) The meningococcus can be obtained in pure culture from the experimental monkey.

(5) The sera of persons suffering from the disease can agglutinate and give positive complement fixation with meningococci obtained from other patients.

(6) The meningococcus produces a protective mechanism in carriers which is absent in susceptible persons.

(7) Vaccine treatment in suitable cases can increase the opsonins in patients. This is associated with improvement in the clinical symptoms.

Pathology.

They give a short account of the pathological findings, and attempt to trace the passage of the meningococcus from the blood into the cerebro-spinal fluid. They point out that it is usually believed that the cerebro-spinal fluid is secreted by the gland-like choroid plexuses, of which those of the lateral ventricles are the most important. In fulminating cases the plexus is intensely congested and the ventricular fluid turbid. On microscopical section of the choroid plexus Gram-negative diplococci are found in the lymph spaces. There is also a considerable effusion of polymorphonuclear cells. They state that it is evident that the diplococcus does not make a long stay in the choroid plexus. They consider, however, that this is one route, at all events, from the blood to the cerebro-spinal fluid. The Pacchionian bodies are found to contain large numbers of polymorphonuclear cells, plasma cells and connective tissue cells. Gram-negative diplococci are seen in the lymph spaces, and also phagocyted in the polymorphonuclear cells. In addition, they have noted the inclusion of lymphocytes and other cells, indicating a reaction on the part of the

body against the bacterium. It is assumed that the Pacchionian bodies pass cerebro-spinal fluid back from the sub-arachnoid spaces to the blood. If this be fact, the finding of meningococci would indicate the mechanism of the increase of fluid pressure. The bodies would become inflamed and the circulation of the cerebro-spinal fluid would be impeded. They conclude this chapter of their researches by giving their conception of the route followed by the infecting virus from the mucosa of the naso-pharynx to the cerebro-spinal fluid. Further observations guide them in assuming that the *diplococcus crassus* follows the same route.

Bacteriological Method.

The precautions taken to collect material in a satisfactory manner in a tropical country are given in full detail. They aim at information of the germ causing the illness, whether it is present in the peripheral blood, urine, and naso-pharynx of persons suffering from the disease and also of contacts; who are the persons carrying the bacterium, whether it causes illness other than cerebro-spinal meningitis, and whether the same germ is found in animals. Broth flasks for receiving samples of peripheral blood, cerebro-spinal fluid and urine, Buchanan's medium in slants for inoculation with swabs from the naso-pharynx, glass slides for smears of the deposit in the cerebro-spinal fluid and of blood, and blood capsules for the agglutination tests are sent through the military and governmental departments to the medical officers throughout the Soudan. This material is accompanied by full instructions for use and notes dealing with the aims of the investigations proposed. The flasks for the cerebro-spinal fluid contain glucose broth, while those for blood and urine contain plain broth. The temperature in the box is not less than 25° C., and, consequently, the organisms do not die during the transit, and can be induced to grow within 24 to 48 hours after the flasks are placed in the incubator. If the blood capsules have to travel a considerable distance, it becomes necessary to separate the serum from the clot. This method has given the authors complete satisfaction. The diagnostic difficulties are mainly the differentiation from the meningitic forms of pernicious malaria and from tetanus. Typhus and septicæmic plague can be readily distinguished from epidemic cerebro-spinal meningitis by clinical means.

Treatment.

Since no drug has yet been found which can find its way to the meningococci in the naso-pharynx and in the meninges, the authors consider that the one method of achieving success in the prevention and treatment of the disease is to increase the resistance of the body fluids. Their studies of the opsonic index in the carrier and in the victim to the disease suggested to them that they would be able to measure the increase in resistance under vaccine treatment by the opsonic index.

A preliminary trial of treatment by commercial serum proved to them that, in so far as tropical conditions were concerned, this means was not efficacious, even in large doses. They admit that this form of treatment may be of use in conjunction with vaccine treatment, provided that the serum is produced with the various strains of meningococci causing the disease in the Soudan. The vaccine first used was prepared by killing the organisms at 56° C. for 45 minutes. Sixteen patients were treated in this way. Some of them were in a hopeless condition, while others were suffering from a fever of average severity. Ten patients recovered and six died. These results encouraged the authors to attempt to improve the vaccine, and this was achieved by using more strains and heating to 50° C. for 20 minutes. When all the cocci were not killed by this procedure the added lysol (0.2%) sufficed to render the vaccine sterile. Doses of this vaccine up to 250 millions had no bad effects on normal persons. They give adults 200 millions at the first dose and 500 millions at the second. Children receive about 50 millions for the first and 100 millions for the second or subsequent doses. The leucocytic and opsonic indices of four patients treated in this manner are recorded. With unheated serum the former averages 1.2 (control 0.2) and 5.9 (control 1.0) respectively, while with heated serum both were 0.2, as compared with 0 for the controls. In comparing the opsonic indices of untreated cases, of temporary carriers and of vaccine treated cases they show that the figures are 0.5, 4.7 and 6.0. It may be remarked that all the patients whose opsonic indices were included in the table recovered. The indices of the unheated cerebro-spinal fluid in two cases were 0.14 and 0.06 (control 0.18) for the leucocytic index and 0.7 and 0.3 (control 1.0) for the opsonic index. With heated fluid the indices are given at 0.02 to 0.04. They deduce from these figures that in the two individuals the normal opsonin content was lower than that of the healthy person serving as control. The untreated cases also reveal lower leucocytic and opsonic indices than the control. On the other hand, the indices of the attendants who were carriers were considerably higher than those of the control. The inference drawn from these observations is that the opsonins were at the lowest level in persons who fall victims to the disease, that after auto-vaccination (carriers) the opsonins are raised above the normal level, and that the highest level is reached in persons treated by vaccines. Within narrower limits the same holds good of bacteriotropins. They leave the question undecided whether opsonins and bacteriotropins are distinct entities, as Neufeld believes. An enquiry into the cellular elements of the cerebro-spinal fluid reveals that that of the vaccine-treated persons contained fewer polymorphonuclear cells and relatively more mononuclear cells. This was most marked in the stage of convalescence. They conclude from the various observations that "polyvalent vaccine therapy with systematic withdrawal of fluid by lumbar puncture, good food, nursing and hygienic conditions and with symptomatic treatment is worthy of a serious trial."

Prophylaxis.

In connexion with prophylaxis they record the experiments conducted with the Nyam-Nyams referred to above. Under the ordinary conditions of life of these people, the opsonic index was found to be lower than usual. Vaccinations with five million cocci produced an increase of the index from 0.26 to 2.5. After 50 millions had been given and the people had been kept in healthy, hygienic surroundings, the index rose to 4.5. Later the opsonic index of the vaccinated was 7.8, and of the unvaccinated persons, who had become accustomed to the new surroundings, was 2.6. The prophylaxis, which they carry out, is based on the following principles: (*i.*) A search for cases and immediate isolation. The patients are not allowed to leave the hospital until bacteriologically free from the organism, while the attendants are examined for the coccus and treated accordingly. (*ii.*) Systematic search for carriers. When found the carrier is isolated and treated. (*iii.*) Disinfection of the nose of the general population, and an endeavour to induce healthy persons to submit to a vaccination with doses of 5, 50 and 100 millions, at intervals of one week. (*iv.*) The prevention of overcrowding and bad ventilation in infected areas, together with the cleansing and disinfection of huts and clothing.

British Medical Association News.

MEDICO-POLITICAL.

A meeting of the Council of the Victorian Branch was held at the Medical Society Hall, East Melbourne, on July 26, 1916, Dr. A. V. M. Anderson, the President, in the chair.

The attention of the Council was directed to bereavement notices in the public press, in which the medical attendant was thanked for his "unremitting attention," etc. The Council recommended that a paragraph should be inserted in *The Medical Journal of Australia*, calling attention to the fact that such notices were covered by the provision in "Principles of Medical Ethics" adopted by all the Branches of the British Medical Association in Australia: "Members should always discourage the publishing of paragraphs in the lay press, notifying their attendance upon prominent persons."

An inquiry was received from one of the Branches as to the attitude of this Branch towards homœopathic practitioners. A reply was sent that, in the opinion of the Council, the practice of homœopathy was unethical; and that it was unethical for a member to meet a homœopathic practitioner in consultation.

Dr. Nigel Lovat Prichard, Geelong, was elected a member of the Victorian Branch.

A meeting of the Council of the Victorian Branch was held at the Medical Society Hall, East Melbourne, on August 10, 1916, Dr. A. V. M. Anderson, the President, in the chair.

Dr. L. S. Latham, who had been accepted for military service abroad, tendered his resignation as Honorary Secretary. This resignation was accepted with regret, and there was placed on the minutes a record of the great appreciation of the Council of his services to the Branch. The Council wished him a speedy and safe return. The Assistant Honorary Secretary, Dr. J. Dunbar Hooper, was elected to fill the vacancy, and Dr. Allen Robertson was elected to the position vacated by Dr. Hooper. Mr. Alan Newton, who was also leaving on military service within a short time, tendered his resignation as a member of the Council, and this was accepted also with regret.

It was decided to send circulars to all members of the Branch, requesting them, other things being equal, to patronize firms which advertise in *The Medical Journal of Australia* in preference to those which do not.

It was determined to take concerted action to obtain all information possible with regard to the outbreak of infantile paralysis in New Zealand and America so as to be prepared should the epidemic spread to Australia. It was arranged to devote an evening to this subject on the first Wednesday in October.

Dr. Alexander Hopkins Thwaites, on active service, was elected a member of the Branch.

Dr. Kent Hughes was elected as representative of the Association on the Council of the Free Kindergarten Union of Victoria.

The following have been nominated for election to the New South Wales Branch:—

Dr. Oswald Jacob Ellis, "Ravensbourne," George Street, Redfern.
Dr. Alexander Paterson Murphy, Royal Prince Alfred Hospital, Camperdown.
Dr. Charles George McDonald, Royal Prince Alfred Hospital, Camperdown.
Dr. Donald Walter McCredie, Angel Road, Strathfield.
Dr. Neville Graham Sutton, Royal Prince Alfred Hospital, Camperdown.
Dr. Jonathan Murray Maclean, Royal Prince Alfred Hospital, Camperdown.

Medical Societies.

THE OPHTHALMOLOGICAL SOCIETY OF NEW SOUTH WALES.

The Annual Meeting of the Ophthalmological Society of New South Wales was held at the Sydney Hospital on August 2, 1916, Dr. J. C. Halliday, the President, in the chair.

Secretary's Report.—The Secretary reported, on behalf of the Council, that the past year had been a very successful one as regards the amount of clinical work dealt with. Every meeting held had taken the form of a clinical evening, and a large number of interesting conditions were exhibited. One paper was read by Dr. MacLeod on a new method of trephining for glaucoma; and exhibits were shown and discussions took place upon fourteen very interesting clinical conditions.

There were no additions to the membership. The Society sustained a great loss in the death of the late Dr. Odillo Maher, who was very regular in his attendance at meetings, and his opinions were always invaluable.

The attendance of members on the whole had been very satisfactory, and there had been as many cases exhibited and discussions on these cases as the time at the disposal of the Society had allowed. .

The Treasurer presented the balance-sheet, which showed the Society to be in a satisfactory financial position.

The adoption of these reports was carried.

Election of Officers.—The election of officers for the ensuing year was then proceeded with; and no other nominations having been received, the following office-bearers were elected:—

President: Dr. Cyril Shepherd.
Vice-President: Dr. A. E. D'Ombrain.
Honorary Secretary: Dr. Guy Antill Pockley.
Honorary Treasurer: Dr. E. Temple-Smith.
Members of Council: Drs. R. H. Jones and E. A. Brearley.

A discussion took place as to the advisability of the Society utilizing some of its funds for the establishment of a library; but it was decided to postpone definite action until a later date.

Reports on, and exhibits of cases, were then proceeded with.

Successful Magnet Operation.

Dr. Temple Smith reported a second case of removal of a minute fragment of steel from the posterior segment of the eye, by means of incision and the hand magnet. The fragment was localized very accurately by Dr. J. G. Edwards with a Sweet's localizer, and was stated by him to be of less size than one millimetre in its largest diameter. This proved to be perfectly accurate. The interesting features of the case were that the steel had been in the eye three weeks, that it had left a wound of entrance on the nasal side of the iris, and that it had then traversed the lens, which was opaque when the patient was first seen, and had come to rest in the posterior part of the vitreous humour on the temporal side. The body was removed in the usual way, by rotating the eye, exposing the sclera over the foreign body, and making a small incision. On insertion of the magnet point the fragment was immediately attracted. The eye was quiet, and the patient had returned home for the complete maturation of the cataract, which would be removed in due course.

Detachment of the Retina following Trephining for Glaucoma.

Dr. Temple Smith read notes on a case in which an operation of trephining for advanced glaucoma on both eyes was followed by double detachment of the retina. The speaker said that everyone could bring forward a collection of successful operations, but it was from failures that more was learnt. He would be grateful for any light that could be thrown on such an unexpected and unfortunate occurrence. The operation was called for by deep cupping, high tension and failure of vision and fields. It was quite easy and uneventful, and the convalescence was uncomplicated. There was no iritis; the patient had careful nursing for a fortnight. The vision was then found to be poor, and, on examination, in both eyes was found a bulging detachment of the retina or of the choroid and retina to the nasal side of each trephine-hole. As no improvement followed on the adoption of the recumbent position each eye was punctured after about two months, and cauterized over the most prominent part of the detachment, and for a week the condition seemed to have been cured. Unfortunately it had recurred, and the patient's vision naturally was much impaired. Post-operative detachment had been mentioned by Fuchs, Elliott, Vail of Chicago, and Verhoeff of Boston; the latter had treated it as above with success. The speaker had met with it half a dozen times, and believed it would often be found if looked for early, but in the other cases it had, as with Fuchs and others, been only transitory and had recovered spontaneously.

A discussion followed on the relative frequency of retinal and choroidal detachment after operations for glaucoma and after cataract extraction; and several cases were cited of choroidal detachment immediately following operation which only persisted for a short time.

Dr. Shepherd described a case in which choroidal detachment above occurred a fortnight after an apparently successful operation. He was fearful as to the eventual result, but fortunately the detachment disappeared in a very short time.

Copper Wire in the Sclera.

Dr. Jones showed a very interesting foreign body which he had removed from an eye. The patient, a child, had received a blow from the lash of a whip some weeks before, and the mother stated that there was still a red spot on the eye where the whip had struck it. Upon examination Dr. Jones had found a traumatic cataract, and upon looking closely at the red spot, which was situated above the cornea just clear of the limbus, he noticed a small hair-like body in its centre. On making traction on it with a pair of iris forceps, he withdrew a fragment of very fine copper wire

about ten millimetres in length. This had perforated the sclera at right angles, and projected through into the lens. Upon enquiry he found that the lash of the whip contained some fine wire. He reported this case, both on account of its unusual features and on account of its proving how essential it was to take a minute and careful history of the accident.

Dr. Guy Pockley considered that the patient was very fortunate to escape losing the eye through suppuration, as it was a well-established fact that copper and brass foreign bodies frequently had this effect.

Dr. D'Ombrain showed a case for Dr. Eric Pockley *in absentia*, of a male aged 75. The vision in the left eye had never been good, but was getting worse during the last few years. He had never had any pain. In the right eye the vision had been failing two years. The right lens was cataractus; over the left disc was what appeared to be an irregular mass of inflammatory exudate with branching streamers following the vessels, especially in an upward direction. It was very similar in appearance to a plate he had seen in a text book of *choroiditis exudativa*. He asked those present to express an opinion on the nature of the condition.

The members favoured the view that the mass on the disc and spreading from it, was the remains of embryonic connective tissue.

Dr. Jones pointed out that it could not be a choroidal exudate, as the mass was lying on the disc and distinctly in front of the retinal vessels.

Dr. Shepherd made some remarks concerning a case of retinal or choroidal exudate in a child. He hoped to exhibit the case at a future meeting.

Public Health.

THE HEALTH OF NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the week ending August 12, 1916:—

	Metropolitan Combined Districts. Cs.	Dths.	Hunter River Combined Districts. Cs.	Dths.	Remainder of State. Cs.	Dths.	Total. Cs.	Dths.
Enteric Fever	8	0	0	0	3	0	11	0
Scarlatina	46	0	0	0	28	1	74	1
Diphtheria	40	3	5	1	42	4	87	7
C'bro-Sp'l Menin.	14	3	0	0	7	3	21	6
Infantile Paralysis	1	0	0	0	0	0	1	0
Pul. Tuberculosis	21	9	0	1	†		21	10
Malaria	2	0	0	0	0	0	2	0

† Notifiable only in the Metropolitan and Hunter River Districts.

THE HEALTH OF VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the week ending August 13, 1916:—

	Metropolitan. Cs.	Dths.	Rest of State. Cs.	Dths.	Totals. Cs.	Dths.
Diphtheria	97	0	22	1	119	1
Scarlatina	26	0	14	0	40	0
Enteric Fever	1	0	0	0	1	0
Pulmonary Tuberculosis	13	8	12	6	25	14
C'bro-Spinal Meningitis	9	—	12	—	21	—

INFECTIVE DISEASES IN QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, for the week ending August 12, 1916:—

Disease.	No. of Cases.
Pulmonary Tuberculosis	13
Diphtheria	37
Erysipelas	5
Scarlatina	7
Varicella	37
Cerebro-Spinal Meningitis	2
Infantile Paralysis	1
Malaria	6
Enteric Fever	1

INFECTIVE DISEASES IN SOUTH AUSTRALIA.

The following notifications have been received by the Department of Public Health, South Australia, for the week ending August 5, 1916:—

	Adelaide. Cs.	Dths.	Rest of State. Cs.	Dths.	Totals. Cs.	Dths.
Measles	34	0	182	0	216	0
Diphtheria	4	0	60	2	64	2
Pertussis	6	0	27	1	33	1
Pulmonary Tuberculosis	1	1	12	9	13	10
C'bro-Spinal Meningitis	0	1	5	1	5	2
Scarlatina	0	0	4	0	4	0
Erysipelas	0	0	3	0	3	0
Puerperal Fever	0	0	1	0	1	0
Enteric Fever	0	0	0	1	0	1

INFECTIVE DISEASES IN WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the week ending August 5, 1916:—

	Metropolitan. Cases.	Rest of State. Cases.	Totals. Cases.
Enteric Fever	1	0	1
Diphtheria	7	2	9
Scarlatina	4	0	4
Pul. Tuberculosis	8	1	9
Erysipelas	1	0	1
Septicæmia	3	1	4

THE HEALTH OF TASMANIA.

The following notifications have been received by the Department of Public Health, Hobart, during the week ending August 12, 1916:—

Disease.	Hobart. Cases.	Launceston. Cases.	Country. Cases.	Whole State. Cases.
Diphtheria	2	2	19	23
Pulmonary Tuberculosis	2	1	4	7
C'bro-Spinal Meningitis	1	1	1	3
Puerperal Fever	0	1	1	2
Enteric Fever	0	0	1	1

SMALL-POX IN NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the week ending August 20, 1916:—

	Cases.
Country—Narrabri	2

THE CONTROL OF MILK.

A series of amended regulations under the Pure Food Act, 1908, dealing with milk and cream, as well as with citral, oil of lemon and essence of lemon and other essences, was issued on August 11, 1916, and published in the *New South Wales Government Gazette* of the same date. The definition of milk has been altered to the following:—

(1) Milk shall be the normal, clean and sweet secretion obtained from the udder of the healthy cow, properly fed, kept and regularly milked, excluding that got during the seven days immediately following on parturition. It shall contain not less than 8.5% of milk solids not fat, and 3.2% of milk fat. It shall not contain any added water, nor any other added substance.

The definition of cream is that portion of milk in which the greater part of the milk fat has become concentrated. It shall contain not less than 35% of milk fat. Reduced cream must not contain less than 25% milk fat. Every package containing cream or reduced cream must bear a label indicating the nature of the fluid and the percentage of fats.

Skim or separated milk must contain not less than 8.8% of milk solids other than fat. The vessel containing skim milk must be labelled "Skim milk," and every person selling this commodity must deliver to the purchaser a label on which the words "Skim milk, unfit for infants," are printed.

A number of regulations deal with condensed milk and dried milk. The essence of these regulations is that the preparation, when mixed with a declared quantity of water, shall form a fluid not below the composition of standard milk. Sweetened or unsweetened condensed skim milk and dried skim milk must be labelled "Unfit for infants" as well as "Skim milk."

Special Correspondence.

(By Our Special Correspondent.)

LONDON LETTER.

The Venereal Diseases Commission.

The Royal Commission on Venereal Diseases, of which the Chairman was Lord Sydenham, issued its final report at the end of February. The report is one of great importance, and, under normal conditions of life, would have attracted more widespread notice than it is likely to receive when the public attention is so completely absorbed in affairs of war. Of this fact the Commissioners themselves are cognisant, because they say:—

"Our report must issue at a period when all public activities are preoccupied in fulfilling the manifold needs of war. We are conscious of the disadvantage thus arising, and we feel there is some risk that our recommendations may not receive the immediate attention which their national importance demands. We desire, therefore, to place on record our strong opinion that the conditions now existing and those which must follow on the conclusion of the war imperatively require that action should be taken without delay." Lord Sydenham and his colleagues, on the volume of the evidence placed before them, do not believe that the percentage of infection in the naval and military forces is now greater than in normal times, but they arrive at the conclusion that the number of infected persons undoubtedly has increased. The military authorities are doing their utmost to provide treatment, but the civil population requires corresponding measures, and all experience shows that after a war an excessive incidence of disease is certain to occur, even in districts previously free. To meet present and future conditions, the Commissioners say no time should be lost.

The general effect of the Commissioners' recommendations is to provide extended facilities for bacteriological diagnosis, combined with the provision of adequate and skilled free treatment, the cost of which should fall mainly on the national exchequer. Institutional treatment should, as far as possible, be provided at general hospitals, and local authorities should, as the first step in the preparation of their schemes, approach the general hospitals in their areas with a view to making arrangements for treatment. There should be no refusal to treat a patient who is unwilling to go to his own doctor, and special arrangements, such as evening clinics, should be made for the treatment of outpatients at hours convenient to the working-classes. Men in the Army or Navy suffering from these diseases, whose period of service has not expired, should be detained until they are pronounced not infectious. The means for the diagnosis and treatment of venereal diseases by modern methods should be made available in prisons.

The Commissioners also recommend the amendment of the law, so as to provide that "a communication made *bona fide* by a medical practitioner to a parent or guardian or other person directly interested in the welfare of a woman or man, and with the object of preventing or delaying a marriage with a person, who is in an infectious condition from venereal disease, shall be a privileged communication." It is further recommended that statutory recognition be given to the principle that infectious venereal disease constitutes an incapacity for marriage, and that this process should be made available for all persons, however poor. The Commissioners remark that they are deeply sensible of the need and importance of the appeals to conscience and honour which are made by the religious bodies and by associations formed for this purpose, and they believe these appeals will gain force if the terrible effects of venereal disease on innocent children and other persons, who have no vicious tendencies, are more fully realized. They hope that the National Council for Combating Venereal Diseases, of which Sir Thomas Barlow is chairman, will become a permanent and an authoritative body, and that it will be recognized as such by the Government.

On April 14th, Mr. Walter Long, President of the Local Government Board, received a deputation from the National Council for Combating Venereal Diseases which came before him to urge the importance of giving immediate effect to the recommendations of the Royal Commission as regards the provision of adequate facilities for diagnosis and treatment. The deputation was introduced by Lord Sydenham, President of the National Council.

In reply to the arguments set forth by the deputation, Mr. Long congratulated Lord Sydenham and the members of the Royal Commission on the successful conclusion of their labours. The thanks of the Government and the country were due to them for their well-considered and practical suggestions. He considered that the importance of this subject as a matter of public health, especially in regard to the future population, could not be over-estimated. He had communicated with the Treasury, who were prepared to provide the necessary grant to carry out the recommendations of the Royal Commission with regard to the provision of facilities for diagnosis and treatment. These grants would cover 75% of the cost incurred by local authorities. It was not proposed to create special hospitals for the treatment, as it was felt that treatment would be carried out more efficiently and with less danger of prejudice at the existing general hospitals.

The University of Oxford.

In a Convocation held on March 22, 1916, the Proctors for 1916-1917 were admitted to office, the Rev. J. M. Thompson, Fellow of Magdalen, as Senior, and Dr. H. H. E. Craster, Fellow of All Souls, as Junior Proctor.

The outgoing Senior Proctor, Mr. E. Hilliard, Fellow of Balliol, in giving up his office, made the customary Latin speech, reviewing the events of the past year. He referred to the attenuated numbers of undergraduates in residence, and to the University's splendid record in the Army and Navy, as shown by the Oxford Roll of Service. He pointed out that on the western front the army was led by a Brasenose man, Sir Douglas Haig, and he spoke of the heavy toll taken of Oxford men in that army, and of the cloud thrown over the University by the loss of so many young lives: *Ver ex anno amisimus.* The emergency measures passed during the year to cope with the lack of candidates for examinations were alluded to, and, in particular, the suspension of University scholarships and prizes, the emoluments of which are to be diverted to University purposes. The advice of the Board of Finance that a "long view" of University adjustment should be taken was pressed upon the University, in view of possible financial stringency in the future. Strong approval was expressed of the policy of allowing those serving their country to supplicate for the degree of B.A., provided that they had kept certain terms and passed certain preliminary examinations.

Thanks were expressed for the munificent benefactions of Mr. Dyson Perrins, of Queen's College, of £30,000 for the new chemical laboratory, and for the bequest by the late Mr. Christopher Welch, of Wadham College, of over £30,000 for the furtherance of biological research. The compliment of a degree of D.C.L., by Decree of Convocation to the Master of Balliol, in recognition of his learned contribution to the study of Roman criminal law, was accompanied with a tribute to him personally *ad unguem factus homo, "non ut magis alter amicus."* The Vice-Chancellor's power of rapid and hard work and facility for grasping essential facts were alluded to in complimentary terms. The incoming Proctors were urged to keep the flag of the University flying. Even amid the upheaval of all institutions caused by the present terrible war the civil structure of the Commonwealth must be maintained, and, above all, centres of education, such as the University of Oxford. In conclusion, a hope was expressed that peace would be declared during the Proctors' tenure of office *"et dirae ferro et compagibus arctis claudantur belli portae."*

The Vice-Chancellor having admitted the new Proctors to office, the Senior Proctor nominated as his deputies, Mr. C. C. J. Webb, Fellow of Magdalen, and Mr. W. A. Pickard-Cambridge, of Magdalen; the Junior Proctor, in his turn, nominated as his deputies Mr. F. W. Hall, Fellow of St. John's, and Mr. C. Grant Robertson, Fellow of All Souls.

Correspondence.

ASTHMA: ITS CAUSE AND TREATMENT.

Sir,—I have read with great interest the correspondence resulting from Dr. Ewbank's paper. I am not going to repeat what I have already said on asthma, more especially as my views are already known to my colleagues in

Queensland. One part, however, I will now repeat. I heartily agree with Francis' statement that nasal defects, if possible, ought to be left alone. Only a short time ago the greater part of a night was spent keeping a patient alive with inhalations of oxygen, etc., who was semi-comatose and highly cyanosed. This patient had been operated on recently by a rhinologist well known to us all.

From the cases I have seen during the last sixteen years I am satisfied that Francis' diagnosis of asthma was extremely vague. As an example, I have a patient at present who has suffered since childhood from tuberculosis of the bronchial glands, which of late years has advanced by bronchial extension, and there are now tubercle bacilli in sputum. As all clinicians with experience in this branch of medicine know, such patients are subject to occasional wheezing all over the lungs, which is aggravated by climatic conditions. In this case the patient states the wheezing was only slight. Notwithstanding, her septum was cauterized by Francis.

As I only see the failures, it is highly probable I may be biassed. To test this vexed question, I have a patient, the most stubborn case of asthma I have ever seen. I now give my friend Dr. Robertson a cordial invitation to visit here and treat the case. If he is free from asthma for a year only I will retract everything I have ever said or written.

The question has been asked, "How do I see so many cases, and how are they admitted to the Sanatorium?" The answer is extremely simple. The many failures from the Eastern States, Queensland in particular find their way here eventually, and come as a forlorn hope. These human shipwrecks and derelicts are dumped on the railway platform, many of them in a state of exhaustion and distress. The hotels and boarding-houses will not have them, even for "big" money. Further comment is needless. Many of these cases I have been able to improve considerably, and some to cure.

Dr. Kent Hughes seems to have no difficulty in finding an "absolutely healthy nose." Personally, I find it almost as difficult to find as a normal ear or eye. Dr. Kent Hughes mentions the out-and-out supporters in Australia. What about England, and London in particular? In 1912, at the Liverpool meeting, I asked several well-known throat and nose specialists. As for their answers it is best to take Mark Twain's advice, and steer clear of the ink bottle.

In spite of all, I am still open to conversion, and look forward with very great pleasure to Dr. Robertson's visit.

Yours, etc.,

A. STEWART.

Dalby, Queensland,
14th August, 1916.

CRIMINOLOGY AS A BRANCH OF MEDICINE.

Sir,—In his letter to the *Journal* of the 12th August, Dr. Beattie Smith quotes two instances of what the Law is capable of doing when the question of criminal responsibility crops up. In the first case the ruling was (in Dr. Beattie Smith's words) "guilty and not guilty at the same time"; and in the second case "the man was guilty, but insane, which is not a conviction, and without a conviction the Court of Criminal Appeal has no jurisdiction. So what can you do with the Law?" Comment upon these decisions is unnecessary.

Long acquaintance with legal medicine allows Dr. Beattie Smith to speak as an authority in these matters, but I regret that I am unable to express the same confidence in the legal idea of criminal responsibility as he appears to do. The explanation is probably because I agree with the ideas of Maudsley and Lombroso and Dr. Beattie Smith holds with Dr. Nicolson in regarding anthropology a dangerous doctrine when applied to criminology.

The object of my paper was not primarily to discuss responsibility, but to show how criminals were the outcome of circumstances which can be appreciated to the full extent only by medical men, and therefore medical men should have a larger say in matters dealing with criminals than they do at present. Some ambiguity of the last two lines of my paper have given Dr. Beattie Smith the idea that I wish "to import asylum doctors into criminal matters." That is not so, I simply require the medical officers to be full-time officers and experienced in psychiatry, besides holding ordinary medical qualifications.

Yours, etc.,

W. A. T. LIND.

Royal Park, August 14, 1916.

LOCUM TENENTES AND THE WAR.

Sir,—I notice in your *Journal* and in the lay press calls for more medical men to go to the front. Some little while ago I decided to offer my services and approached an agent with a view to obtaining a locum. I was told there were several available at the following rates: £10 per week and either half or one-third of the remaining profits, with expenses. This worked out in my practice to about £16 per week, while I, on active service, would receive £1 2s. 6d. a day. Having a wife, two children and father to support, this put the matter out of the question.

It is apparent that it is not much good calling for medical men to go to the front, while they are at the mercy of locums in this fashion.

Yours, etc.,

"MEDICO."

August 14, 1916.

TRAUMATIC MYOSITIS OSSIFICANS.

Sir,—In the *Journal* of August 12th two interesting cases of growth of bone in hæmatoma adjacent to the shafts of long bones were recorded by Mr. Hamilton Russell and Mr. G. A. Syme, of Melbourne. Both surgeons expressed uncertainty as to the pathology of the condition. A chapter on "The Growth of Bone" in Rendle Short's book, "The Newer Physiology in Surgical and General Practice," 1914 Edition, throws some light on these and similar cases. Most of the observations there recorded are based on the work of Sir William MacEwan, and are somewhat contrary to the accepted teaching of the growth and repair of bone. Nevertheless, they are convincing.

Some ten years ago we were taught as students that the periosteum formed bone, and practically nothing was said in reference to the regenerative power of the bone corpuscles themselves. MacEwan states that the function of the periosteum is not to produce bone, but rather to limit its production, and that osseous regeneration takes place from the osteoblasts of the bone itself, and not from the periosteum. This thesis is supported by experiments on animals and observations on man. MacEwan further states that one of the factors that induces bone corpuscles to become active is relief from the pressure of the ensheathing periosteum. The book referred to further states that certain French and German observers have stated that blood clot has an influence not only in providing a suitable medium in which bone may be formed but further exerts a direct chemical stimulus upon the osteoblasts.

Given, then, the presence of blood clot, a torn periosteum (for Mr. Russell states that "apparently" the bone was uninjured) and assuming that osteoblasts themselves can totally regenerate bone, we have present all the factors necessary to the formation of bone in the cases mentioned by Mr. Russell and Mr. Syme. When the pressure on the underlying osteoblasts is relieved by the tearing of the periosteum, the osteoblasts can migrate into the hæmatoma and so regenerate bone.

Rendle Short practically states in so many words that this is the pathology of traumatic *myositis ossificans*. He maintains that massage or movements scatter the osteoblasts into their new surroundings, there to produce bone. This statement provides a pathological basis for Mr. Russell's strong objection to early passive movement, and his opinion is upheld by Robert Jones.[1]

One might reasonably suppose that there should be some direct communication between the original bone shaft and the new bone formation if the previous contentions be true. Continued movement might, however, cause a separation, as the condition of traumatic *myositis ossificans* is a muscular phenomenon as regards its situation.

A case bearing on the above is as follows: Some months ago I was consulted by a man, æt. 45 years, who stated that ten years previously he had received a severe blow on the metatarsal bone of the great toe. A swelling gradually

[1] *British Medical Journal*, December 7, 1912.

formed at the site of injury. On examination, a growth about the size of a small hen's egg, over which the tense skin had ulcerated, was discovered. The growth was not situated in muscular tissue, but on removal was found to be wholly composed of cancellous-like bone and connected with the underlying normal metatarsal bone by a fibrous attachment only.

MacEwan records an interesting case, in which a traumatic aneurysm in a young patient was penetrated by a spicule of humerus. The sac developed a regular bony wall, and the explanation given is that osteoblasts were washed out of the humerus and distributed throughout the clot, lining the aneurysm. MacEwan further records experiments which are the analogy of the case described by Mr. Russell, "in which several fragments of compact bone had been driven into the surrounding tissue, forming a mass of callus around them." MacEwan took the precaution of first removing the periosteum, and maintained that the excessive callus formed as the result of the proliferation of osteoblasts.

In the *British Medical Journal*, June 10th, 1916, Robert Jones calls attention to some facts concerning malunited and ununited fractures. He states that pieces of bone quite loose should be scrupulously saved, except in the presence of suppuration. "They should be carefully replaced in position or round the site of the fracture. The removal of these pieces is very frequently the cause of non-union." No mention is made of the periosteum, and the quotation given seems to be a practical recognition of MacEwan's thesis of the paramount importance of the regeneration of bone by osteoblasts of the bone itself.

Rendle Short agrees with the treatment adopted in the case recorded by Mr. Syme, in which no operation was performed, and advises strict limitation of movement by means of a splint.

Yours, etc.,
A. J. OPIE, M.B., Ch.B. (Melb.).

Minto Street, Coraki, N.S.W. (Undated).

HYPERÆSTHESIA SEXUALIS, ALIAS BAD HABITS.

Sir,—I venture to assert that "Invicta's" patient's cure would be easily found at the nearest Recruiting Depôt. If, unfortunately, for any reason, the Army Authorities cannot or will not assist, a change of manual exercise is all that is required. Wood-chopping, or any hard, physical work, if persisted in, strengthens the control centres of the brain enormously.

This is the method by which reasoning man evolved from the brute, and the same method can still be applied to individual cases when necessary. Of course, if the patient prefers mere animal lust, or attempts at it, to the exercise of his higher human functions, there is no more to be said. A lunatic asylum will, no doubt, later on accommodate him.

A most acute observer, Krafft-Ebing; it is pleasing to know that his co-patriots have provided a cure for hosts of bad habits, in many poor Britishers, by means of "The Trenches."

Yours, etc.,
HENRY S. MAW.

Candelo, N.S.W., August 20, 1916.

Proceedings of the Australasian Medical Boards.

NEW SOUTH WALES.

The following have been registered under the provisions of "The Medical Act, 1912 and 1915," as duly qualified medical practitioners:—

Allen, Theophilus George, M.B., M.S., 1916, Univ. Sydney.
Arnold, Geoffrey Penrose, M.B., 1916, Univ. Sydney.
Beale, Hector Llewellyn, M.B., M.S., 1916, Univ. Sydney.
Beith, Bruce McNeil, M.B., 1916, Univ. Sydney.
Cameron, William Wallace, M.B., M.S., 1916, Univ. Sydney.
Cockburn, Archie Sheridan, M.B., M.S., 1916, Univ. Sydney.
Davis, Clyde, M.B., 1916, Univ. Sydney.
Davis, David Aubrey Arnot, M.B., 1916, Univ. Sydney.
Dolman, Henry, M.B., M.S., 1916, Univ. Sydney.
Ellis, Oswald Jacob, M.B., 1916, Univ. Sydney.
Fitzgerald, Edmund Luke, M.B., M.S., 1916, Univ Sydney.
Flook, William Keith Walker, M.B., 1916, Univ. Sydney.
Hammond, Frederick Arthur Lucas, M.R.C.S., Eng., 1894; L., 1894; M., 1910; R.C.P., Lond.; D.P.H., Camb., 1910.
Humphries, Charles Cecil, M.B., M.S., 1916, Univ. Sydney.
Hunter, Lancelot John, M.B., 1915, Univ. Sydney.
Hunter, Ronald Jones, M.B., 1916, Univ. Sydney.
Lawrance, Guy Ardlaw, M.B., 1916, Univ. Sydney.
Leaver, Harry, M.B., 1916, Univ. Sydney.
McCaffery, Ernest Moore, M.B., 1916, Univ. Sydney.
McCredie, Donald Walter, M.B., 1916. Univ. Sydney.
McDonnell, Stanley Augustine, M.B., 1916, Univ. Sydney.
Morgan, Ernest Leslie, M.B., M.S., 1916, Univ. Sydney.
Murphy, Alexander Paterson, M.B., M.S., 1916, Univ. Sydney.
Orr, Hubert James, M.B., M.S., 1916, Univ. Sydney.
O'Shea, Patrick Joseph Francis, M.B., 1916, Univ. Sydney.
Quinn, Cecil Roy, M.B., 1916, Univ. Sydney.
Roberts, William Henry, M.B., M.S., 1916, Univ. Sydney.
Short, Frederick, M.B., 1916, Univ. Sydney.
Stenning, Arthur Ernest, M.B., B.S., 1915, Univ. Melb.
Sutton, Neville Graham, M.B., M.S., 1916, Univ. Sydney.
Utz, Leslie, M.B., M.S., 1916, Univ. Sydney.
Wellisch, Gilbert Charrington, M.B., M.S., 1916, Univ. Sydney.
Wiburd, Carvosso Roy, M.B., 1916, Univ. Sydney.
Wilson, John Sidney, M.B., M.S., 1916, Univ. Sydney.

QUEENSLAND.

The following have been registered under the provisions of the "Medical Act of 1867" as duly qualified medical practitioners:—

Allsop, Leslie Thomas, Brisbane, M.B., Ch.M., Univ. Syd., 1916.
Finlay, Donald Francis, Texas, Ch.M., Univ. Syd., 1914.
Francis, Richard Powell Waugh, Brisbane, M.B., Univ. Syd., 1916.
Hamilton, George Redfearn, Warwick Hospital, M.B., Ch.M., Univ. Syd., 1916.
Maclean, Lillian Alexia, Brisbane, M.B., Univ. Syd., 1909.
Mansfield, Thomas Montague, Brisbane Hospital, M.B., Univ. Syd., 1916.
Metcalfe, Francis Bramall, Brisbane, M.B., Univ. Syd., 1916.
Mitchell, Clarence Archibald, Brisbane Hospital, M.B., Univ. Syd., 1916.
Park, Charles Leslie, Brisbane, M.B., 1907, Ch.B., 1908, D.P.H., 1915, Univ. Melb.
Tillett, John Rowland, Toowoomba Hospital, M.B., Ch.M., Univ. Syd., 1916.
Weir, James, Brisbane, M.B., Ch.M., Univ. Glasg., 1896.
Willis, Valentine Neville Buchanan, Brisbane Hospital, M.B., Ch.M., Univ. Syd., 1916.

Provisionally Registered.

Loubet, Paul René, Goodna, M.D., Paris, 1914.

Additional Registration.

Hoare, William Wallis, Brisbane, F.R.C.S., Edin., 1916.

SOUTH AUSTRALIA.

The following have been registered under the provisions of the "Medical Act Amendment Act, 1889," as duly qualified medical practitioners:—

Abbott, Nigel Basil Gresby, M.B., B.S., Adelaide, 1916.
Black, Geoffrey Howard, M.B., B.S., Adelaide, 1916.
Burden, Clive Britten, M.B., B.S., Adelaide, 1916.
Burnell, Glen Howard, M.B., B.S., Adelaide, 1916.
Shipway, Graham Stewart, M.B., B.S., Adelaide, 1916.
Southwood, Albert Ray, M.B., B.S., Adelaide, 1916.

Books Received.

ULTRA-VIOLET LIGHT BY MEANS OF THE ALPINE LAMP, by Hugo Bach, M.D., Authorized Translation from the German, 1916. New York: Paul B. Hoeber; Crown 8vo., pp. 114. Price, $1.00.

CEREBELLAR ABSCESS: ITS ETIOLOGY, PATHOLOGY, DIAGNOSIS AND TREATMENT, INCLUDING ANATOMY AND PHYSIOLOGY OF THE CEREBELLUM, by Isidore Friesner, M.D., and Alfred Braun, M.D., F.A.C.S., 1916. New York: Paul B. Hoeber; Royal 8vo. Price, $2.50.

THE PRACTICAL MEDICINE SERIES, UNDER THE DIRECT EDITORIAL CHARGE OF CHARLES L. M[illegible], A.M., M.D.: VOL. III., THE EYE, EAR, NOSE AND THROAT, edited by Casey A. Wood, C.M., M.D., D.C.L., Albert H. Andrews, M.D., and George E. Shambaugh, M.D., Series 1916. Chicago: The Year Book Publishers; Melbourne: Stirling & Co.; Crown 8vo., pp. 376. Price, 7s.

LATERAL CURVATURE OF THE SPINE AND ROUND SHOULDERS, by R. W. Lovett, M.D.; Third Edition, Revised and Enlarged, 1916. Philadelphia and London: P. Blakiston's Son & Co.; demi 8vo., pp. 210.

Medical Appointments.

Dr. H. H. Nowland, Acting Senior Assistant Medical Officer, Mental Hospital, Callan Park, New South Wales, has been appointed Senior Assistant Medical Officer, in place of Dr. G. P. U. Prior.

It is announced in the *South Australian Government Gazette*, of August 3, 1916, that His Excellency the Governor has been pleased to appoint various persons to constitute the Advisory Council of Education, under the Education Act, 1915. Among those appointed by His Excellency without previous nomination is Dr. Gertrude Halley, the Principal Medical Officer of the Education Department. The nominees of the Council of the University of Adelaide are Professor William Mitchell and Professor Robert William Chapman. There are 17 members altogether, seven nominated by the Minister of Education, two by the Council of the University of Adelaide, two by the United Trades and Labour Council of South Australia, and one each by the South Australian Chamber of Manufactures, by the South Australian Employers' Federation, by the Advisory Board of Agriculture and by the South Australian Public School Teachers' Union.

The appointment of Arthur Lee Wilson Tackaberry, of Oodnadatta, South Australia, to be an officer of health under the Health Act of 1898, is announced in the *South Australian Government Gazette*, August 10, 1916. We note that the name of Tackaberry does not appear in the register of medical practitioners of South Australia.

Dr. B. H. Morris, Inspector-General of Hospitals, South Australia, has been appointed Inspector of Institutions under the Inebriates Act, 1908.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xxi.

Hospital for the Insane, Goodna, Queensland, a Second Assistant Medical Superintendent.

Thursday Island Hospital, Medical Officer.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Brisbane United F.S. Institute.
WESTERN AUSTRALIA. (Hon. Sec., 330 St. George's Terrace, Perth.)	Swan District Medical Officer. All Contract Practice Appointments in Western Australia.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	The F.S. Medical Assoc., Incorp., Adelaide.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Department of Public Instruction—New Appointments as Medical Officer, Ophthalmic Surgeon, Ear, Nose and Throat Surgeon, Physician. Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance Association and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phœnix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Orange. F.S. Lodges at Parramatta, Penrith, Auburn, and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	Brunswick Medical Institute. Bendigo Medical Institute. Prahran United F.S. Dispensary. Australian Prudential Association Proprietary, Limited. National Provident Association. Life Insurance Company of Australia, Limited. Mutual National Provident Club.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	F.S. Lodges, Wellington, N.Z.

Diary for the Month.

Aug. 29.—N.S.W., Branch, B.M.A., Medical Politics Committee, Organization and Science Committee.
Aug. 30.—Vic. Branch, B.M.A., Council.
Aug. 31.—S. Aust. Branch, B.M.A., Branch.
Sept. 1.—Q. Branch, B.M.A., Branch.
Sept. 6.—Cent. South. Med. Assoc. (N.S.W.).
Sept. 6.—Vic. Branch, B.M.A., Branch.
Sept. 8.—N.S.W. Branch, B.M.A., Clinical Evening.
Sept. 8.—S. Aust. Branch, B.M.A., Council.
Sept. 12.—Tas. Branch, B.M.A., Branch and Council.
Sept. 12.—N.S.W. Branch, B.M.A., Ethics Committee.
Sept. 13.—South Sydney Med. Assoc. (N.S.W.).
Sept. 14.—Vic. Branch, B.M.A., Council.
Sept. 15.—N.S.W. Branch, B.M.A., Last Day for Nomination of Two Candidates for Election of Federal Committee.
Sept. 19.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
Sept. 20.—W. Aust. Branch, B.M.A., General.
Sept. 22.—Q. Branch, B.M.A., Council.
Sept. 26.—N.S.W. Branch, B.M.A., Medical Politics Committee, Organization and Science Committee.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.